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A RÉSUMÉ OF SOME WORK ON INFECTION THROUGH THE TONSILLAR CRYPTS.

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For reasons not necessary to enter upon here, it has seemed to me permissible to occupy a few pages of THE LARYNGOSCOPE with a review of the attempts I have made in a series of papers elsewhere to obtain some insight into the local processes of infection of the lymphoid tissue of the throat, meaning thereby the sequence of events occurring in the passage of a bacterium from the upper surface to the lower surface of the epithelial line of the tonsils. This seems most easily and profitably done by tracing in outline the wide path of thought and observation which has led me to the views which seem to me most applicable to the problem.

It is more than twenty years ago since I began, in a bacteriological laboratory, an investigation of the bacterial flora of the nose and throat.[1] There was impressed upon me then not only an appreciation of the filtering function of the nose for bacteria, but an appreciation of the fact that the lymphoid tissue of the naso-pharynx and the faucial tonsil have more or less constantly as denizens of their surface recesses the staphylococcus and the streptococcus pyogenes, which, while usually apparently harmless in that situation, produce harmful local and systemic reactions in animals when inoculated. From these studies and from the general advance of bacteriology it seemed all but certain that the ordinary germs of infection, of phthisis, of diphtheria, of typhoid fever and of septicaemia "lurk everywhere in the ordinary pursuits of life. We carry them about with us on our skins and mucous membranes. They

(1) New York Medical Journal, July 27, 1889.—Nasal Bacteria in Health.

float in the air we breathe, they swim in the water we drink, they burrow in the food we eat, but the number of their victims bears no proportion to the number exposed to their attacks."[2] How far this assertion has been borne out by the revelations of the twenty years which have all but passed since then, is measured by the fact that such an assertion is now a mere platitude of medical science. In the day of high contagionist doctrines it was not open to that criticism. Since then the presence of cholera and typhoid bacilli in the intestines, the diphtheria bacilli in the crypts of the tonsils, the occasional presence of pathogenic organisms in the blood, their frequent presence in the internal organs of healthy people, the all but universal infection of adult man with the tubercle bacillus, have been demonstrated time and again. The fact that at certain times they are harmless and at certain times they are dangerous and fatal to the continuation of human life, pointed as surely then to the conclusion of the existence of other factors of disease as it appears now that those factors have been dragged to the light in the laboratory. They have been familiar in the clinic since the dawn of medical history. The impossibility which has always existed of ignoring these factors has compelled us, since the discovery of pathogenic bacteria under the conditions to which I have alluded, to formulate a theory of equilibrium of the system between infection and immunity, in order to account for the symbiosis we know so often exists between the human cell and the pathogenic bacterium which lies in contiguity or in union with it. There is every reason to believe that the equation expressing this equilibrium is being worked out in terms of electro-dynamics. This is becoming more and more apparent in the work which has gone so far on the internal circulating fluids and cells of animals, through the arduous labors devoted to the study of immunity, aided by the ingenious symbols of the so-called theory of Ehrlich. These in themselves explain nothing and hence are inapplicable to that problem of immunity and infection with which we are immediately concerned.

In the microscopic examinations of the faucial tonsils and adenoids which occupied my attention in part for many years, I was continually mystified by the sight of bacteria, mostly cocci, on the surface of the epithelium of tonsillar crypts, with no indication of their penetration beneath the epithelial wall. In the exudate of the tonsils lying in the crypts, made up of leucocytes which are often extruded through the so-called stomata of Stoehr and of the keratotic

(2) New York Medical Journal, May 30, 1890,—Resistance to and Recovery from Disease.

peelings of the epthelial cells, bacteria may be seen freely to mingle with them. This is especially striking in the horny layers, known when they project like stiff hairs from the mouths of the crypts as keratosis of the tonsil. This dead stuff they penetrate and in it they thrive, while they are warded off from the interior of and the interstices of the living epithelium. Living tissue presents, in virtue of its specially adjusted forces, a barrier which the usual inhabitants of the crypts do not pass in health in sufficient numbers to be detected, or endowed with sufficient potentialities, when they do pass, to produce disease. There is little or no appearance of half-digested bacteria in the crypts, nor is there any evidence that they are continually passing and being destroyed by a bacteriolysis within.

Several years ago a tonsil fell into my hands, removed from a child who was healthy and who remains without systemic infection, which showed a dilated crypt with actinomycis-like clumps in it, a common enough observation—but in addition to the pus and detritus in the dilated crypt some actinomycis threads were seen growing and producing their characteristic though feeble reaction within the lymphoid tissue itself beneath the epithelium. There are a score or more of the varieties of the actinomyces, most of them not pathogenic, and I came to the conclusion that the peculiar clumps so often seen in tonsillar crypts are, at least some of them, these saprophytes,[3] but this was one which had penetrated the barrier usually impenetrable to them, and was feebly struggling for an existence.

In the tonsils of some sickly children (not with any acute trouble either local or general) I succeeded in finding colonies of cocci beneath the epithelium. I have since found them in the quiescent lymphoid tissue of the throat of an adult woman suffering from exophthalmic goitre with the usual symptoms. During the time these and other observations were occupying my thoughts, Dr. Goodale of Boston was kind enough to send me some slides holding sections of tonsils in whose crypts before removal he had placed carmine granules. The inert matter was passing freely through the epithelium. His experiments[4] and subsequently those of Hendelsohn[5] of a like nature were published.

It then became evident to me that in the tonsillar crypts also we had to do with some sort of an equilibrium between the epithelium

(3) Actinomycosis of the Tonsil etc.,—American Journal of the Medical Sciences, July, 1904.
(4) Archiv fur Laryngologie VII., p. 90.
(5) Ibid. VIII, p. 476.

and the foreign matter in contact with it when that foreign matter was protoplasm.[6] At first an endeavor was made with the help of a bacteriologist of note to lay out some plan of experimental work whereby we could bring the problem in line with the formulae of Ehrlich in the study of the internal body cells and fluids. We could not do so. What the opinion of my bacteriologist friend was I do not know, but I have always believed that the fundamental trouble was with the formulae and not with us or our phenomena. At bottom chemical problems are doubtless problems of physics, and some of the phenomena of life can be made to conform with formulae derived from chemistry, but outside of narrow lines they are quite inadequate. At any rate, it was quite apparent to us both that the problem of accounting for the forces, exhibiting in the tonsillar crypt a differentiation whereby inert dust is allowed to pass and bacterial protoplasm is excluded, could not be solved with the wooden imagery for a bacteriolysin or a cytolysin or an agglutinin and a precipitin. I began to repeat the experiments of Goodale and of Hendelsohn with various forms of dust, and to note the effect of wounding and puncturing the tonsil upon the bacterial life of the crypts.[7] It seemed superfluous to introduce foreign bacteria into tonsillar crypts, since we have the problem constantly before us. The tonsillar crypt with its bacterial contents is a test-tube to be found in every throat-clinic ready prepared. The phenomena of dust scattered on a layer of bacteria on the cryptal surface, passing through them and on through the epithelium to the lymphoid tissue below without carrying along any germs of like or smaller size, were very striking. Subsequently similar experiments were carried out with a fatty substances—butter was smeared on the tonsils before removal.[8] Saponification and absorption took place more promptly, if anything, than the absorption of dust. It was seen that neither the dust nor the bacterium, when it did pass, entered any cells either epithelial or leucocyte, at least not until deep down in the tissues, if at all. The oil globules, on the other hand, as minute as cocci, were many of them seen inside of cell bodies lying close against the nuclei.[9] The process was one of osmosis and capillary attraction, but these words are descriptive,

(6) The Equilibrium between Infection and Immunity in the Tonsillar Crypts,—The Medical News, March 9, 1905.

(7) The Difference in the Behavior of Dust from that of Bacteria in the Tonsillar Crypts,—New York Medical Journal, January 6, 1905.

(8) The Fat Contents of the Tonsils and Its Relation to the Processes of Metabolism and Infection,—New York Medical Journal, Dec. 15, 1906.

(9) I will not stop to explain why I became convinced some of these globules were not of endocellular origin.

not explanatory. They did not explain to me the significant differentiation of action. It is evident to all biologists that hints of heredity, of nourishment and of immunity are to be found in the acts of a protoplasm, which is indifferent to dust, greedy of nourishment and on the alert against bacterial enemies. This is not chemistry, this is not physics, this is biology—this is chemistry and physics united (perhaps with something else): this is life.

Now it may be clear to others, as it was by that time clear to me, that if I was to satisfy my curiosity, a very much wider and more fundamental consideration must be given to the question than was to be obtained from the narrow and stifling precincts of medical specialism, laryngological or bacteriological or pathological. It seemed necessary to go back to the primordial forces[10] of attraction and repulsion exhibited by processes in nature widely separated by the arbitrary pedagogy and pedantry of man. Chemistry and electrodynamics have now a recognized affiliation that Faraday was the first to perceive, and it is only of late finding its application to living phenomena. But one's field of vision must be wider than that which includes only the chemical test-tube and the medical storage-battery if he is going to find out Nature's secrets.

I remember as a boy watching a dry leaf or a few flakes of dry bran gyrate in the eddies caused by them as they fell on still water. I remember seeing thin, smooth bits of paper clinging to a perpendicular dry varnished surface, and the next day refusing to do so. I remember making the bits of paper dance back and forth from an ebony ruler after rubbing it with a silk handkerchief. Many years later I had learned that these things are due to the variation in the electro-dynamic surface tension set up by the impact of certain surfaces one with another. Bringing these earliest impressions and later acquisitions of knowledge in contact with the phenomena of the bacterium and the dust and the oil as they strike the epithelial cell, it seemed to me that there could be no doubt of the proper direction in which to seek for further information. I should perhaps add that the information published as to the properties of colloids, organic and inorganic, had much to do with establishing the affiliation in my mind of these phenomena. How wide a sweep it was necessary to take which should include heredity in biology, electro-dynamics in physics, tonsillitis in laryngology, is evident to

(10) The Primordial Nature of the Forces Exerted Against the Penetration of Bacteria Beneath the Surface of the Body.—New York Medical Journal, Jan. 20, 1906.

the point of ridicule. The effrontery of my attempting to publish remarks[11] on cosmic matters incident to but not directly bearing upon a problem presented in laryngology, I fear was only too apparent. However, that was chiefly a matter of editorial responsibility. At any rate, it was impossible to get the pertinent matter in my own mind in a concrete form without such incidental excursions, and the shape this assumed to me was more excusably presented[12] in a series of papers on the physical processes of immunity and infection. I can not here go into the details of the arguments derived from other fields which appealed to me and confirmed me in the belief which grew in the way I have described out of the vague idea that it was the electro-dynamic charge surging along the surfaces of colloid bodies which determine their movements in relation to one another. In the last five years we have been learning a great deal of the properties and reactions of colloid solutions when brought in contact with one another and with inert matter. Gengou[13] and Buxton and his associates[14] among others have thrown a flood of light upon the reactions of living protoplasm by their physico-chemical investigations. There seems the best reason to believe that when a protozoon, the lowest form of animal life, a single cell of naked protoplasm, is observed to reject certain substances placed upon its surface and absorb the others as food,[15] it is done by the intervention of the same forces that are at play in the behavior of the tonsillar epithelium towards the substances on its surface, that is, the surface tension forces of attraction and repulsion or neutrality. But this is not sufficient. How comes it that protoplasm tries all things, chooses the good, rejects the bad and is indifferent to the harmless?

At once we see the intervention of the laws of heredity manifested in the workings of natural selection and adaptation. The protozoon and the tonsillar protoplasm have selected from their own reactions those states of the colloid matter of which they are composed suitable for their nourishment and survival in the presence of food and of danger. The protozoon rejects the inert particles as they interfere with its internal processes. The tonsillar epithelium wards off the bacteria for the same reason, and by a molecular ar-

(11) The Origin and Heredity of Matter,—St. Louis Medical Journal, August and September, 1906.
(12) New York Medical Journal, Feb. 16, March 9 and 20, April 6 and 27, 1907.
(13) Archives Internationales de Physiologie, Sept. and Nov. 1908.
(14) Zeitschrift fur Physikal. Chemie, LX., 4, 5, 1907; LXII, 3, 1908; Zeitschrift fur die Gesammte Biochemie, Bd. XI., hft. 11, 12, 1908; Journal of Medical Research Feb. 1909
(15) Schaeffer: Science March 12, 1909, p. 425.

rangement of its colloid state in such a way that the proper forces are brought into play. Again, the protozoon absorbs the bacteria placed on its surface as food, and the tonsillar epithelium, like the intestinal epithelium, absorbs the oil globules and is indifferent to the passage of dust. A bacterium riding into the tonsillar crypt on a dust particle is usually swept off, we may believe; but there is some evidence that a bacterium wrapped up in the oil globule of milk, deprived of its own warning surface tension and coated with the surface tension of the oily food, slips in where the naked bacterium might have been kept out. Into this I will not go, though in that field also I might derive further evidence of the nature of the process in the tonsil.

Yet all this is only a partial lifting of the veil of mystery. It still has only an academic interest for the laryngologist and the rhinologist. Let us see by, advancing further, if this interest can not be enlisted, since that can furnish the only excuse for the intrusion of this article here. Loeb has shown how a muscle contracts. It is induced by virtue of a molecular disturbance set up in the protoplasm of the nerve supply. That we knew before, but he showed[16] experimentally that it came about by virtue of the electrolytic action of the nerve current whereby certain salts (electrolytes) arise at the terminal filaments of the nerve and the state of the protoplasm in muscle plates is changed. At once we think of the emulsion occurring when the oil strikes the tonsillar surface, of the acts of digestion, etc. Saponification we now know plays a very important part in the processes of immunity and toxaemia, as well as in digestion. Does it not seem so suggestive as to be all but obvious that that is what happens in the tonsillar crypt when a molecular disturbance is set up in the nerve in the shock of catching cold, of gastric disturbance, of uric acid in the blood?[17] The index of the surface tension of the epithelial cell as it is related to that of the bacterium in its crypt is altered, perhaps in the same way as that of the muscle plate. I might leave the matter here, for if I have not succeeded in appealing to the clinician by putting the matter in this light, I can entertain little hope of doing so by pursuing it into other fields. Yet from them I must derive what support I may.

Now this physico-chemical process is the function of a cell, of a living thing. The cell twists its molecules around in such a way,—

(16) University of California Publications, Dec. 30, 1905.

(17) I might say that that is the view of the association of quinsy and rheumatism I am inclined to take, without having gone into the subject extensively. It is the uric acid which lets in the streptococcus or the staphylococcus, not the latter which produces the gout and the rheumatism.

we can see the intracellular currents which, in billions, they make,—that its surface has the plus or minus sign, is negative or positive towards its neighbors, blows hot or blows cold as we do ourselves when things please us or displease us. I have insisted that "manifestly any part of the activities going on within the colloid of cells must bear intimate relations to other intracellular activities." This is perhaps not exactly the way to put it in order to make clear why I have attacked the specific problem from a general as well as a specific standpoint. So I have been forced to develop my meaning further by adding that "the intracellular processes of immunity are so intercalated with the intracellular processes of growth and reproduction that together they form" not separate processes, interrelated, but one process. I have laid emphasis on this, for in it I have found the comforting reflection of a valid excuse for having pursued the question of molecular dynamics into the domain of heredity and of intracellular histology and into other territory still more strange to me. The special field which seems to me to throw the most light upon intracellular dynamics of any with which I can claim any especial objective familiarity is that of cancer.[18] By comparing the intracellular phenomena in the cancer cell with those within the normal cell on the basis of molecular dynamics, to me we seem to obtain a deeper insight into Nature's workings than in any other way of looking at the question. We gain at least a glimpse of the fact that the wonders of cell division and of systemic immunity and of our special problem of surface infection all have a common basis in molecular dynamics, expressed in terms of surface tension as understood in physics. If this seems clear, then I think it should be apparent that we must hereafter try to get some fresh inkling of the mystery of heredity by a study directed along the same lines. This also I have been bold enough to attempt,[19] spurred on by the haunting memory of the special problem.

The consideration of the faucial and pharyngeal tonsils as products of the changed environment of man[20] has perhaps less of a direct bearing upon the question of the process by which infection of the tonsillar surfaces takes place than the other directions of inquiry, but nevertheless it seems to me that this also has had its significance,—and therefore had its excuse for publication.

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(18) The Affiliation of Cancer with the Fundamental Theories of Heredity,—New York Medical Journal, April 3, 1909.

(19) The New York Medical Journal,—Jan. 9, Feb. 13, 1909.

(20) The New York Medical Journal,—August 8, 1908.

TONSILLECTOMY.*

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Until within the last few years the removal of the tonsil has been accomplished by means of the tonsillotome. In the rarest instances only has the tonsil been completely removed in this way. As a rule, a large stump has been left behind, and in the practice of many it has often enough occurred, after a reasonably thorough removal, that recurrence took place.

To remove the tonsil completely, with its capsule intact, various methods are proposed under the term tonsillectomy. Now, if by the operation of tonsillectomy we refer to a procedure so difficult that it takes a relatively long time to complete it, so painful that it requires the use of general anesthesia, so dangerous that it must be followed by a few days' rest in bed, becoming thereby unsuitable for ambulatory cases, so severe that it is apt to be followed by marked inflammatory reaction in the contiguous tissues, then indeed we may well pause before urging this operation in all cases. The question arises: Shall a tonsillotomy or a tonsillectomy be done, in those cases, especially in weak or debilitated individuals, in which the indication for the removal of the tonsils is given by symptoms referable to the increased size of the organ only, namely, symptoms due to interference with respiration, deglutition, and speech? Past experience has conclusively shown that in these cases of simple hypertrophy the removal of the larger part of the hypertrophied tonsil is followed by an immediate abatement of the symptoms, although it is a fact that in these very cases of simple hypertrophy the operation of tonsillectomy is most easily and quickly performed.

When, on the other hand, the indication for the removal of the tonsils is given by the occurrence of repeated attacks of inflammation, whether of the simple, follicular, diphtheritic or suppurative variety, by chronic inflammation resulting in more or less extensive adhesion of the tonsil to the pillars or its complete submersion under the surface of the mucous membrane, by interference of the enlarged organ with the function of the Eustachian tube, by discharge of putrescent material from the crypts into the pharynx, by absorption of rheumatic or other poisons into the general circulation, nothing less than the complete removal of all the tonsillar

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tissue from the tonsillar fossa can be expected to relieve the patient of all his symptoms. In particular, the interesting question of septic absorption from the tonsils can only be decided by the observation of numerous cases in which the remote symptoms disappeared after operation. No observations which have been made in this regard in cases in which only a part of the tonsil has been clipped off with the tonsillotome are of any scientific value whatever; only those cases deserve consideration in which the complete removal of all the tonsillar tissue could be conclusively demonstrated. For this purpose it is necessary not only to remove the entire tonsil, but to remove it with its so-called capsule complete and intact; because, in the first place, it is at the bottom of the crypts that putrefaction is apt to be most frequent, and in the second place, in the numerous experiments which have been made to determine the possibility of absorption through the tonsillar tissue, the fact seems to have been generally overlooked that septic material can be absorbed from the tonsil without the necessity of passing through any tonsillar tissue at all. If a probe is passed into the crypts of a tonsil which has been removed with its capsule intact, it can be seen that many of the crypts pass directly down to the capsule itself. The probe can be clearly seen through the capsule, so that, apparently, there is no tonsillar tissue at the bottom of these crypts. The putrefying contents of the crypts are separated from the lymphatic spaces of the neck by only a thin membrane, and as there are apt to be five or six such crypts in each tonsil, the combined area through which absorption can take place is not inconsiderable.

Of all the methods which have been proposed for the complete removal of the tonsil, the most formidable is the cautery dissection of Pynchon. For this purpose a variety of cautery knives are required, with which the tonsil is severed from its attachments. The special object of this method of operating is to avoid hemorrhage, but it is nevertheless necessary to make applications of strong silver solutions to the wound from time to time to stop bleeding. The fear of complications resulting from the large area of slough which remains, has deterred many from adopting this method of operating.

A very radical method of removing the tonsil is the dissection of the entire structure from its bed by means of a sharp scalpel, as described by Ballenger. In spite of the liberal use of adrenalin injected into the faucial pillars, the hemorrhage during the operation is pronounced, especially if the muscles surrounding the tonsil

or the large vessels contained within them should be injured, as may happen. The mucous membrane of the supratonsillar fossa is included within the incision, and is removed with the tonsil. This is necessary, as pointed out by Casselberry, in order to free the upper portion of the tonsil, which may lie buried within the substance of the soft palate.

Another method of removing the tonsil consists of dissecting out the upper part with angular knives, of which a very large variety, having various shapes, curvatures and angles have been invented. Generally, these are hooked in between the tonsil and pillars, and then drawn inwards into the throat. The operation is completed by severing the lower part of the tonsil with a tonsillotome, a snare or a special instrument called a tonsil ecraseur.

Pynchon, Robertson and others have used scissors instead of knives, as the cut made by the scissors is less apt to bleed than that made by the knife. The variety of tonsil scissors is second only to the variety of tonsil knives.

Myles removes as much as possible with the tonsillotome and the remainder with the tonsil punch. The capsule is drawn into the throat with forceps, and all the tonsillar tissue that can be found is removed. The thoroughness with which this is done depends upon the judgment and skill of the individual operator, and cannot be demonstrated in a positive manner by the examination of the specimen removed, as may at times be desirable.

G. L. Richards has taught us an entirely different method of removing the tonsil. He separates the tonsil from the pillars by insinuating the tip of the forefinger between them, and then separates the capsule from the superior constrictor by continuing the manipulations. When the upper lobe of the tonsil projects far up into the velum or when the supra-tonsillar fossa has become obliterated by adhesions, it may be necessary to begin the dissection with a sharp instrument. The operation is concluded by drawing the tonsil out through the ring of a tonsillotome, and cutting it off. Richards lays special stress upon the importance of carrying the separation well downwards along the anterior pillar in the neighborhood of the plica, for if this is not done, there is danger of cutting its muscular fibres or the large blood-vessels within them. During the separation there is a tendency for the finger to penetrate beyond the limits of the tonsil both in a lateral direction and downwards, so that more traumatism may be caused than is intended. An operator who has a narrow forefinger and a strong finger-nail is undoubtedly endowed with an excellent separator; but Richards

has conclusively demonstrated that it quite possible to carry out the dissection with the blunt end of the finger alone and that a wound so produced has a lesser tendency to bleed than a wound made with a sharp knife.

The writer has removed tonsils by most of the methods enumerated, and has finally selected from the great variety of procedures those methods which seemed to him to accomplish the desired purpose in a satisfactory manner with the production of the least traumatism and the least hemorrhage, in the shortest time and with the fewest instruments. Before describing the operation, however, a brief review of the surgical anatomy of the tonsillar region will help to make clear the principles which have determined his choice in each instance.

The tonsillar fossa is a triangular space bounded posteriorly by the posterior pillar containing the palatopharyngeus muscle, and anteriorly by the anterior pillar containing the palatoglossus muscle; the floor or outer wall of the fossa is formed by the superior constrictor of the pharynx. The fossa is deepest above, becoming gradually more shallow below, where it finally merges into the plane of the lateral pharyngeal wall. When the tongue is protruded or firmly depressed, the anterior pillar, which is attached to the side of the tongue, is put on the stretch and stands out prominently in the throat, and creates the impression that the entire anterior border of the fossa is much deeper than the posterior. The mucous membrane which covers the anterior pillar is reflected over the free edge of the pillar to its posterior surface, which it covers as far outward as the floor of the fossa, where it may be said to terminate abruptly. In like manner, the mucous membrane is reflected over the free edge of the posterior pillar to its anterior surface, and may be said to terminate abruptly on the floor of the fossa. These two reflections of mucous membrane meet above at the junction of the pillars, and form a pocket known as the supratonsillar fossa. From below, the mucous membrane of the lateral pharyngeal wall ascends to cover the floor of the fossa as far up as the lower pole of the tonsil, where it ends abruptly, so that we may say that upon the floor of the tonsillar fossa there is an irregular area where the mucous membrane is absent, its place being occupied by the tonsil.

Upon the outer or deep aspect of the tonsil there is a more or less densely woven fibrous membrane, which is continuous with the deeper layers of the adjacent mucous membrane and which is known as the capsule of the tonsil. To it the tonsil is intimately connected, whereas the connection between the capsule and the

floor of the tonsillar fossa (the superior constrictor) is made by means of comparatively loose tissue, which permits of a considerable mobility of the tonsil.

While this description is true of the normal tonsil, when the tonsil has been repeatedly inflamed and has become hypertrophied, its relations to the tonsillar fossa undergo important modifications. Inflammatory adhesions are formed between the tonsil and the adjacent surfaces of both pillars. The supratonsillar fossa may become entirely closed by adhesion of its walls to each other or to the tonsil, and the edges of the pillars may become united by cicatricial bands which can be clearly seen upon the free surface of the tonsil. The supratonsillar fossa can, however, be obliterated without the presence of inflammatory adhesions. For the tonsil cannot enlarge in a downward direction, owing to the development of the plica; hence it grows upwards, gradually pushing out the mucous membrane of the supratonsillar fossa in front of it, until the fossa has entirely disappeared. The upper part of the tonsil thus comes to lie within the substance of the velum of the soft palate, and is known as the velar lobe (Casselberry).

The evolution of the plica triangularis is of special interest. Inasmuch as the palatoglossus and the superior constrictor muscles are inserted into the side of the tongue, the anterior pillar and the floor of the tonsillar fossa must accompany the tongue in its movements; hence during the act of swallowing the lower anterior corner of the tonsil is pushed upwards and inwards towards the median line. In thus curving inward, the lower part of the tonsil carries with it not only a part of the mucous membrane from the lateral pharyngeal wall immediately below it, but the lower anterior part of its capsule as well. The lower part of the tonsil therefore becomes dislocated from its attachment to the superior constrictor, and becomes attached, instead, to the posterior surface of the anterior pillar. The area of this attachment is triangular in shape. The apex of the triangle is situated somewhat below the middle of the free edge of the pillar; its lowest border is formed by the line along which the mucous membrane of the plica is folded downward upon the posterior surface of the pillar; its upper border is an oblique line along which the capsule is attached to the posterior surface of the pillar. The attachment of the plica to the anterior pillar is therefore not an inflammatory adhesion, but is an anatomical continuity, although the relations of the part are no longer normal. Any inflammatory adhesions between the tonsil and the anterior pillar must therefore be situated above the plica, and not

below it. The surgical management of this peculiar structure constitutes the key to the operation of tonsillectomy.

To perform this operation I employ four instruments: a forceps to grasp the tonsil, a blunt separator, a pair of scissors curved on the flat, and a snare. It adds to the ease of operating to employ tonsil forceps without ring handles, so that the snare can be slipped over it without performing acrobatic feats with the instruments to get them into proper position. Forceps in which the prongs pass each other without touching will be found less likely to tear out than any other. They are applied to the tonsil sufficiently deep to take a good hold, and the tonsil is drawn toward the median line of the throat. The author's tonsil separator, which has been previously demonstrated to this Section, is then introduced into the supratonsillar fossa, and with a single powerful sweep in a downward direction, accompanied by a rotary motion of the separator on the axis of its shank, all inflammatory adhesions between the anterior pillar and the tonsil are readily separated. When the supratonsillar fossa is closed by adhesions or obliterated by the upward growth of the velar lobe, the separator is introduced anywhere between the pillar and the tonsil, and the sweeping motion is made both downwards and upwards. In those rare instances where the pillars are so adherent over the free surface of the tonsil that the separator cannot be introduced, it may become necessary to make a vertical incision with the scissors at the junction of the pillars in order to gain a point of entrance for the separator. The tonsil is then drawn forward and the posterior pillar separated in a similar manner. In order to free the upper lobe the separator is carried over the upper part of the tonsil in a forward or backward direction. This can be done easily when the upper or velar lobe is not very large; when it is well developed, it is better to defer its complete dissection until a later stage of the operation.

When the upper part of the tonsil has been freed as thoroughly as possible, we are ready for the second step of the operation, upon the importance and advantages of which the writer wishes to lay particular stress. It consists of dividing the plica triangularis at its junction with the anterior pillar by means of the scissors. For this purpose an ordinary surgical scissors curved on the flat and having a long handle, will suffice, provided it is sharp and cuts well toward the point. When it is dull, the plica is apt to slip away from the blades. To avoid this difficulty the edges of the scissors may be serrated, and an instrument modeled after the lines of Prince's tonsil scissors, but with serrated edges, answers the pur-

pose best. They are inserted with the concavity toward the operator, the shanks lying across the tongue, one blade above and one below the plica. They are pushed under the anterior pillar as far as their blunt points will permit, and the intervening structure severed. During this procedure the traction upon the tonsil should be relaxed, as otherwise the anatomical relations are disturbed and the desired parts are not cut. The procedure does not cause any special hemorrhage.

Section of the plica in this manner gives us several important advantages. The plica contains not only a layer of mucous membrane, but a part of the capsule of the tonsil as well, and the cut made by the scissors not only divides the mucous membrane, but also cuts the capsule from its attachment to the posterior surface of the anterior pillar. This opens the space behind the capsule and facilitates the completion of the operation with the snare. But the plica holds the tonsil and prevents its downward displacement; after section of the plica the tonsil becomes freely movable, more movable than it can be made in any other way, so that if downward traction is made upon it the entire organ can be pulled down from its place of concealment in the velum of the soft palate, even when the velar lobe is quite large. The upper parts of the tonsil can now be freed in a very easy manner with the blunt separator or with the blunt end of the closed scissors. The tonsil can now be drawn out into the throat, the pillars slipping behind it and giving it the appearance of a pedunculated growth.

The final removal of the tonsil is accomplished with the cold wire snare. For this purpose none of the snares which I have tried have been found so satisfactory as the powerful instrument devised by Moseley. By adding a set-screw thereto we are enabled to use the previously prepared wire loops similar to those which I have recently devised for use in the nasal snare. This little change facilitates the renewal of the wire and the adjustment of the size of the loop.

As the snare is a blunt instrument it cuts in the direction of the least resistance, that is, between the capsule and the superior constrictor. The entrance of the snare into this layer of loose tissue is rendered more certain by the section of the plica as above described; for this incision opens the space behind the capsule, and if the snare is so adjusted that when it is closed the end of the snare canula enters the cut made by the scissors, the end of the canula helps materially in shelling out the tonsil with its capsule complete and intact. Certain precautions must, however, be observed. The

tonsil must be thoroughly freed from its adhesions, especially in the upper parts, in order to avoid grasping the edges of the pillars or soft palate. Traction upon the tonsil should cease as soon as the snare grips the tissues firmly, so as not to pull upon the capsule otherwise than with the snare. Tonsil forceps with large jaws or with spoon-shaped jaws should be avoided, as they compress the tonsil and pucker up the capsule, thereby distorting the plane of cleavage and preventing the snare from doing its work in the best manner.

The hemorrhage during the operation is not great, even without the use of adrenalin, and ceases immediately upon the application of cold water. The patient holds his head over a basin with his mouth open, and a stream of cold water from a fountain syringe is allowed to play upon the wound. This is repeated at frequent intervals, especially after meals. Antiseptics may be added if desired. Even young children submit to this treatment much more readily than they do to sprays, gargles or other applications. In fact, they seem to enjoy it. In adults, astringent sprays or gargles may be used, and tablets of orthoform, allowed to dissolve on the tongue for half an hour before meals, will enable the patient to eat without much discomfort.

The operation can be performed very quickly, the average time for one tonsil being about one minute. The reaction is comparatively slight. While it is of course greater than follows the removal of a little piece of tonsil with the tonsillotome, it is decidedly less than frequently follows when half the tonsil is left in the throat. For tonsillectomy removes all the diseased and infected tissue, and leaves a wound in clean and healthy parts. Since we have adopted this technic, we have, up to the present time, been fortunate enough to have escaped altogether those dangers which are most feared in this operation, namely, post-operative hemorrhage, secondary hemorrhage, and severe infection of the deep tissues of the neck.

In young children the operation may be performed without anesthesia, as their tissues are soft and the operation can be done quickly. The amount of shock is not greater than that caused by ordinary tonsillotomy, and is more often due to fear than to pain. In children of more sensitive nervous organization and in older children, general anesthesia is preferable. The patient should be thoroughly anesthetized. He should be brought into the stage of surgical anesthesia, with all his tissues relaxed, before the operation commences. It can generally be completed before he regains consciousness.

In adults local anesthesia is preferable, and I am heartily in accord with the advice given by my chief, Dr. Emil Mayer, to operate upon only one tonsil at a time, leaving the second for a subsequent period.

Cocaine may be applied by repeatedly swabbing the surface of the tonsil and pillars with crystals or strong solutions of cocaine, or by injecting weaker solutions into the tonsil or into the pillars. The general practice is to combine adrenalin with the cocaine in order to secure a bloodless field of operation. The use of adrenalin increases the liability to post-operative hemorrhage, such hemorrhages occurring about six hours after operation. The only hemorrhages of any account which I have seen from any of the methods which I have tried, occurred in two cases in which adrenalin was used, in six and eight hours after operation.

Adrenalin produces its characteristic ischemia, not, as is erroneously supposed by some, by contracting the capillaries, but by contracting the unstriped muscle fibres in the muscular coats of the small arteries. Such vessels are considerably larger than capillaries, and, when the effect of the adrenalin has passed away, the vessel wall is temporarily paralyzed, and dilatation ensues. Unless a strong clot has formed in the terminal capillaries, hemorrhage difficult to control is likely to occur.

The use of adrenalin makes the operation impracticable for ambulatory cases and undesirable for office practice. In fact, it becomes necessary to keep patients under constant observation for some time after operation, and most operators put them to bed for twenty-four hours. This minimizes but does not prevent the danger, so that I prefer to forego the advantages which undoubtedly result from a bloodless field of operation, for I consider adrenalin contraindicated in tonsillectomy.

In consideration of the large amount of cocaine necessary for local anesthesia in tonsillectomy, the writer has gone into this question, and presents here for the first time in public a method of anesthetizing the tonsillar region with a minimum amount of cocaine, and a brief report of the results so far attained.

The tonsil is supplied with nerves by the circumtonsillar plexus. The nerves from which this plexus is made up are derived from two sources: from below, the tonsillar branches of the glossopharyngeal; from above, the middle and posterior palatine nerves. The glossopharyngeal is the smallest of the cranial nerves, and its tonsillar branches are small. The nerve is, moreover, a nerve of special sense, rather of general sensation, and its tonsillar branches

may, for practical purposes, be neglected. The middle and posterior palatine nerves are derived through Meckel's ganglion from the fifth nerve, which is the main nerve of sensation for the entire head. These nerves leave the sphenopalatine fossa through the accessory posterior palatine foramina, two small openings in the posterior part of the hard palate at the junction of the alveolar process with the horizontal part of the bone. These two nerves supply not only the tonsil itself, but the soft palate, both pillars, and a part of the lateral pharyngeal wall as well. By injecting the trunks of these nerves as they leave the bony openings, the entire region involved in the operation of tonsillectomy may become anesthetized.

The two openings are very close together, but their location is not marked by any special landmarks on the surface of the mucous membrane of the mouth, so that the point for the injection must be determined by arbitrary measurements. The development of the parts varies considerably with the presence or absence of the last molar tooth, so that two separate methods of finding the point for the injection are necessary.

When the last molar tooth is present, we begin at the posterior end of the margin of the gum of the last molar tooth and measure 1 cm. upwards, i. e., at right angles to the free border of the teeth, and then 1 cm. backwards. When the last molar tooth is absent, we first determine the location of the tip of the hamular process by placing the finger upon the soft palate. The process can be distinctly felt as a sharp point of bone. We then measure 1 cm. in an oblique direction upwards and forwards. When the last molar tooth is present, these two measurements usually lead to the same point; when they do not, an intermediate point is selected. As the mucous membrane in this region is situated about 1 cm. from the bone, the direction in which the needle is inserted is important. A needle with a long shank is used. It is applied to the mucous membrane at the point stated, the shank lying across the tongue, and resting in the angle of the mouth on the opposite side. In this position it is inserted until the point touches the bone when about 15 cc. of a one per cent solution of cocaine are injected.

The results that have been attained thus far are as follows: If the parts are tested five minutes after the injection by pricking the surface with a sharp point, the entire field of operation will be found anesthetic. The separation of the pillars and the section of the plica may be done without pain. When, however the snare is closed over the tonsil, the patients react. According to their statements, the reaction was due to a sensation of pulling rather than to actual

pain. Some patients stated voluntarily that they were more frightened than hurt. One patient, upon whom one side was anesthetized by swabbing with twenty per cent cocaine and the other by injection, stated that the operation on the injected side was less painful than the other. In one patient, of about twelve that were injected, a man with a very deep throat, the gum and hard palate were anesthetized, but the tonsillar region not at all; this was probably due to the fact that the injection was too far forward, and reached the anterior palatine nerve, instead of the middle and posterior.

Perhaps the most favorable evidence of the character of the anesthesia is given by two cases of quinsy, one done by Dr. Mayer, and one by myself. In both cases the patients were able to open the mouth much wider after the injection than before, and the knife could be plunged deep into the tissues without causing any reaction. At the moment when pus began to flow, both patients reacted, perhaps on account of the sudden relief of tension.

Although the number of cases in which this method of regional anesthesia has been tried is small, it seems capable of giving a sufficiently good anesthesia to enable us to do this operation in adults without a general anesthetic, and with a minimum amount of suffering to the patient. All the patients thus far treated have returned to have the second tonsil removed in the same way.

In conclusion, I wish to express my thanks to Dr. Emil Mayer, for the many courtesies which as chief of clinic he has shown me, and for his personal interest and co-operation.

No. 616 Madison Avenue.

Old and New Views of the Adenoid Question. VICTOR LANGE. *Ugeskrift for Leger*, 1906, p. 893.

Lange is not so ready to operate as in his younger days. The reason why one does not always obtain the intended effect of the curetting is that one does not give the chronic hypertrophic catarrh in the naso-pharynx as much attention as it deserves. Eneuresis nocturna is interpreted by Lange as a neuropathic affection, independent of the adenoid vegetations. In his fifty cases of eneuresis nocturna there were found only eight with adenoid vegetations, and in thirty-six the naso-pharynx was entirely normal. The eight patients were operated upon, and in seven the operation had absolutely no beneficial influence on eneuresis nocturna. KIAER.

VINCENT'S ANGINA.*

BY H. ARROWSMITH, M. D., BROOKLYN, N. Y.

Although the text-books are, in the main, silent on this subject, an examination of recent periodical literature will convince anyone that affections of the mouth and oro-pharynx caused by the fusiform bacillus and the spirillum of Vincent are by no means of rare occurrence. We are justified in assuming that where one case is reported, many others have been unrecognized by the medical attendant, or classed in some other category. It is also not unlikely that, owing to their similarity in appearance to other anginas, many of these cases have remained throughout under the care of the general practitioner, who would be less apt than the specialist to assign them to their proper classification.

Although commonly known as Vincent's Angina, there is the customary strife as to priority of description of the culpable bacterium, which so often occurs in Continental scientific circles, between him and several other observers,—Vincent, Plaut and Bernheim making out the strongest cases to substantiate their respective claims of discovery, with a number of others following closely.

The disease has been described under several names; ulcero-membranous angina, chancriform angina, and diphtheroid angina being perhaps the most appropriate. The first gives a good idea of the clinical course of the trouble; the second suggests an appearance which at one period of one of my cases was very similar to that of a primary sore on a mucus surface; and diphtheroid angina again hints at the very close resemblance to diphtheria which these lesions exhibit and with which many cases have doubtless been confounded.

The disease is characterized by the formation of a membranous exudate on the part involved, with erosion or ulceration of varying extent in the subjacent tissues; by more or less pronounced implication of the neighboring glands, and by constitutional symptoms of irregular severity.

Descriptions of the appearance of the diseased parts, by various authors, show a remarkable similarity. Often confined to one tonsil, there is, as a rule, a grayish-white exudate which on casual

*Presented before the Section on Laryngology and Rhinology of the New York Academy of Medicine, February 24, 1909.

inspection resembles very closely that observed in diphtheria. It is of soft consistency and, after a few days, usually thick, cheesy and friable. At the border of the exudate, which is irregular, there is a zone of redness and oedema, more or less intense. Detachment of this exudate, which is easily accomplished, reveals a bleeding surface—the bleeding being generally punctate as if coming through a sieve. After removal, the membrane is very quickly reproduced and gradually extends, until a considerable area is covered. In some instances the process is not confined to the tonsil, but may spread to the soft palate, uvula, pharynx and opposite tonsil, occasionally involving the whole oral cavity in a general membranous stomatitis. It has also been observed well down in the larynx. This constitutes the first variety, or more properly the first stage of the disease. In the second stage ulceration is the most important feature. It may amount to only a superficial erosion, or it may progress under the deposit to an extent and depth unsuspected till the exudate is removed, when its contour and size can be appreciated. The submaxillary and cervical glands are more or less swollen and tender, sometimes intensely painful,—occasionally, however, painless. They may be unilaterally or bilaterally involved.

The patient complains of dryness of the throat and difficulty and pain in swallowing, which, as in two of my cases, may be extreme. Anorexia, various digestive disturbances, vomiting, diarrhea, constipation, malaise, general lassitude, and disinclination to exertion, earache and headache, salivation and fetor of the breath have been noted. Albuminuria has been observed in a few cases, though it seems uncertain that it was directly attributable to the disease. There may be a mild febrile reaction.

As predisposing causes the following seem to be important: young adult life (although recently a larger number of cases have been reported in children of tender years), the male sex, abuse of tobacco, syphilis, mercurial stomatitis, faulty care of the oral cavity, the eruption of the wisdom teeth, dental caries, the injury caused by the extraction of teeth, and traumatisms occurring during the ingestion of food. Ulcero-membranous angina may also be a complication of or a sequel to various acute diseases.

The determining factor in the production of this disease is the presence of two bacterial forms,—the first a rod-shaped bacillus, rather thick in the middle and tapering toward each extremity, giving it a spindle shape, whence its name—the fusiform bacillus. It is not invariably of this contour, but may be short and comma-

shaped or rather long and thread-like, but it almost always shows the pointed ends. It stains best with carbol-fuchsin. The second is the spirillum, which in shape resembles a corkscrew; it stains with more difficulty than the bacillus and best with gentian violet. In the fresh specimen the spirilla are said to exhibit considerable motility, but only for a limited time. At the acme of the disease, examination shows almost a pure culture of the fusiform bacilli and spirilla, but later on they are mixed with other micro-organisms. All attempts to propagate these bacteria in pure culture have failed; the cultures are usually found to contain streptococci. Inoculation experiments show them to be somewhat pathogenic to animals, and fusiform bacilli, but not spirilla, have been recovered from experimentally produced abscesses and from the peritoneal cavity. They are found at times in small numbers in the gums of healthy individuals who are careless in regard to the toilet of their mouths. The spirilla are considered identical with the spirochetae found under normal conditions in the saliva and tartar, and are apparently not pathogenic unless occurring with the fusiform bacilli to which is attributed the active role in the causation of this form of angina. An association or symbiosis of the two bacteria seems to be essential to the production of this disease.

K. Buday (Ziegler's *Beitraege zur path. Anat.*, XXVIII, 1905) says:—"The spirillum is found in large numbers in the tissues in the direction of extension, penetrates them most deeply and prepares the soil for the invasion of the fusiform bacillus; therefore it is of most significance in the *spread* of necrosis, but does not entirely cause it. The fusiform bacillus has a pronounced capacity to produce inflammation. Lacking this tendency, on the other hand, the spirillum can penetrate more deeply into the tissues, infiltrate them and impair their resistance. Necrosis is to be attributed to the fusiform bacilli and their toxins. True gangrenous disintegration is the product of superficial bacteria,—various forms of bacilli and cocci. The histological changes and bacteriology of noma, stomatitis and gangrenous pharyngitis are, in effect, the same, these diseases differing only in location and degree. The spirillum, fusiform bacillus, leptothrix and comma-like bacillus are not various stages of development of one and the same bacterium, but are distinct varieties and in their forms and tinctorial reactions show rather decided differences. The progressive mouth and pharynx gangrenes of childhood belong to the so-called infectious gangrenes and are caused by various mouth bacteria, but especially by the

symbiosis of a spirillum and the fusiform bacillus." (Ref. *Centralblatt,* Feb. 1906.)

Many observers have noted the simultaneous occurrence of a tonsillar lesion and a similar process in the buccal cavity or on the lips, with identical bacteriological findings.

The disease appears to be mildly contagious, most markedly so in the early stages, but transmission implies rather close personal contact. Dopter (*Société méd. des hopitaux,* 2 Mai, 1902) cites an instance in which a patient acquired a Vincent's stomatitis by using the pipe of a comrade who had a Vincent's angina. In a second case, a young man was infected by his sweetheart. Többen (*Berlin. klin. Wochenschrift,* No. 21, 1904) reports the case of a woman twenty-five years of age who had an attack of stomatitis and angina in which the characteristic bacteria were found. Eight days later, her two children, two and four years old, developed ulcers on the gums and mucous membrane of the check showing the same micro-organisms.

The incubation period is said to be six or seven days.

The disease has apparently no geographical limits;—occurring on both sides of the Atlantic, it is also found, according to DeHaan, in Java and the Dutch Indies. (Ref. *Centralblatt,* 1905, p. 382.)

Vincent's angina seems to be generally regarded as a purely local and rather insignificant affection; but occasionally the destruction of tissue assumes serious proportions, even to the point of menacing life. Auché (*Gaz. hebd. des sciences med. de Bordeaux,* 9 Nov. 1903) reports a complete destruction of the uvula, and although I have not been able to verify the reference, I believe that in one or more instances, erosion of the great vessels of the neck has occurred. Vincent says that when the disease is found in young children, the prognosis is grave. Mayer and Schreyer report the case of a sailor, aged 23 years, previously ill of scurvy, who died from an uninterruptedly progressive necrosis of the pharyngeal structures, in which the typical bacilli were found. (*Deutsch. Med. Wochenschr.,* No. 16, 1905.)

The duration is from a few days to an indefinite time. Bayer (ref. *Centralblatt,* vol. 18, p. 352), before the Belgian Oto-Laryngological Society, reported a case that had lasted between three and four months, and which was entirely uninfluenced by local measures of the most radical character, including curetting and the galvanocautery.

Local measures seem to be rather ineffectual. Vincent and others recommend applications of tincture of iodine. Chromic acid and methylene blue have their advocates, and by some, chlorate of potash is regarded as almost a specific. General supporting treatment is necessary, and the most concentrated and easily swallowed forms of nourishment are indicated because of the unwillingness of most patients to subject themselves to the suffering caused by eating. Change of air is said to be of benefit.

The disease is to be distinguished from diphtheria and luetic lesions. This can be done with certainty only by a careful microscopical examination of the exudate. At an early stage the appearances closely resemble those of diphtheria, and later the same statement is true in regard to syphilis. It may occur with both these diseases, though rarely with diphtheria, so rarely, in fact, that some authors maintain that in the presence of the fusiform bacillus and the spirillum, diphtheria may be practically excluded.

The bacteria are to be identified only in smears or in sections made from the exudate in mass. Cultures as made in examining for the diphtheria bacillus will not reveal them, and this may explain why more cases have not hitherto been reported here. Discovery of the bacteria does not exclude the presence of syphilis, but in the event of the simultaneous presence of both diseases, it is advisable to postpone specific medication till the angina is well, as mercurials are very likely to aggravate non-specific ulcerations of the mouth and throat.

For much of the material herein used, I am indebted to the papers of Emil Mayer, who was the first in this country to give a detailed observation of this interesting condition; of W. W. Berkeley in the *Medical Record* of April 15, 1905; of Drs. Weaver and Tunnicliff in the *Journal of the American Medical Association*, February 17, 1906, and of Conrad in Vol. 14 of Fraenkel's *Archiv*.

Case I.—The first case I had the opportunity of observing throughout its course and will therefore report it in detail. Mrs. L., aged 46, consulted me on November 23, 1905, for a spasmodic asthma which had troubled her, at times, for several years and which was not relieved by internal medication. Her mother had had asthma and frequent attacks of bronchitis. The family history was otherwise negative. Eight years before, she had pneumonia, since when she was always subject to asthmatic attacks on exertion and awakened frequently at night in a paroxysm of dyspnoea. Four years before she was treated for gall-stones and has also suffered from

uterine prolapse. A year before, she suffered for a period of three months from what she called "rheumatism." She is well nourished, in fact inclined to obesity, and has some constipation and fermentative dyspepsia. There is no subjective nasal obstruction or discharge, or abnormal sensation connected with the throat. Examination of the nose shows no abnormality apparently sufficient to account for her asthmatic condition, and the same may be said for the naso-pharynx and pharynx. The lingual tonsil is somewhat enlarged. The teeth are in excellent condition and well cared for. Auscultation shows a very slight pulmonary emphysema. The heart appears normal and the urine is entirely negative. There is nothing in the history or findings to suggest any suspicion of luetic trouble. As the only obvious abnormality in the upper air passages was the somewhat enlarged lingual tonsil, I cauterized it twice, at an interval of five days, with little idea of relieving her asthma, but from the first sitting she was completely free from any dyspnoea and remained so, during a very trying illness. The reaction following the cauterization was not pronounced, and a week after the second application, all trace of it had disappeared.

On December 7, she complained of sore throat, which on inspection seemed to be only an ordinary acute pharyngitis and which yielded promptly to the usual remedies Ten days later, she returned with decided pain in the right tonsillar region and pain and tenderness under the angle of the jaw. The right tonsil was swollen and red and the submaxillary glands were markedly sensitive to pressure and somewhat enlarged. Forty-eight hours later, the tonsil was covered by a thin pellicle resembling the exudate of diphtheria, but the local discomfort was so decided that I was suspicious that it might be a question of a primary sore in one of the tonsillar crypts or somewhere in deep, between the tonsil and the faucial pillars. A culture was made but revealed no diphtheria bacilli. The region was so tender that I was unable to make a very convincing search and could discover nothing to corroborate my suspicion of specific infection. The submaxillary glands were now exceedingly tender and enlarged to the size of a hen's egg, but there was no fever and but little acceleration of the pulse rate. At no time during the disease was the breath fetid.

I removed the pseudo-membrane and applied some mild antiseptic. The next day there was a decided increase in the extent and thickness of the exudate and in the local discomfort. Two days later, at the suggestion of Dr. Archibald Murray, I made several smears and

detached a large piece of the exudate of which he made sections. His examination was as follows: "Smears made from the superficial and deeper portions of the exudate on the tonsil and stained with carbol-fuchsin, show an enormous number of diplococci and a few characteristic fusiform bacilli and spirilla. The large number of the diplococci and the scarcity of the bacilli and spirilla are probably due to the fact that the examination was made some time after the onset of the disease. A portion of the exudate was excised and sections cut and stained in carbol-fuchsin. The examination showed very large numbers of fusiform bacilli, but no spirilla could be found. No culture experiments were made."

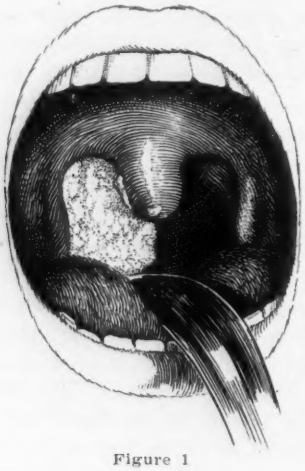


Figure 1

Antiseptic gargles and applications were continued without appreciable result until January 1. The patient was suffering intensely, and I persuaded her to enter the Brooklyn Eye and Ear Hospital for closer observation and more systematic treatment than she was getting at home. The condition on admission is well represented in the first picture. The tonsil was replaced by a mass of exudate which reached to the median line of the pharynx and pushed the uvula toward the left side. This exudate in appearance and consistency resembled nothing so much as a mass of dirty cottage cheese. It was friable, easily removed and almost immediately replaced by a fresh crop. At this time it was nearly three-quarters of an inch thick in the tonsillar region. I said that the tonsil was re-

placed by this material, because on removing it, the tonsil, which had originally reached to the uvula, was seen to have melted down so that it barely reached the faucial pillars; it was necrotic and bled easily. The patient slept only when under the influence of opiates and swallowed with difficulty after the application of orthoform, without which she could not be persuaded to make any attempt at eating. At this period there was some deposit on the median line of the uvula and a trace on the left tonsil, which soon disappeared. The treatment consisted of softening the exudate by mopping it with H_2O_2 and completely removing it, twice a day. The ulcerating

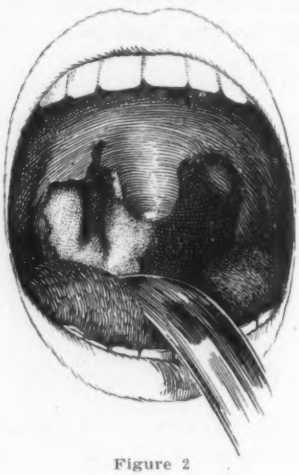


Figure 2

surface, which now resembled a broken-down gumma, was cleaned with enzymol, followed by a boric-acid wash, and thoroughly swabbed with tincture of iodine. This last application was so painful and seemed so inefficacious, that it was discontinued after a week and a twenty-five per cent solution of fused nitrate of silver substituted. This also was without effect, and was followed by a ten per cent solution of trichloracetic acid, which was grateful to the patient and apparently acted favorably. The pseudo-membrane gradually reformed to a less and less degree, and the condition about January 18 is fairly well depicted in the second picture. The velum and anterior pillar were extensively eroded, the right tonsil had entirely disappeared, and there was but a suggestion of the posterior pillar. The ulceration extended to the median line of the pharynx and

downward well toward the esophagus. The glosso-epiglottic and ary-epiglottic folds, the right arytenoid cartilage, the right ventricular band and the right half of the epiglottis were involved in the destructive process. At this time Dr. French saw the patient and kindly made the accompanying sketch, which gives a good idea of the laryngoscopic appearances.

Toward the latter part of January the patient began to slowly improve and left the hospital about the first of February, having lost forty-odd pounds. By the middle of February the ulceration was practically healed. Her highest temperature was 99.4°.

Examination a month later showed a very considerable tissue loss involving about a third of the epiglottis, the right tonsil, part of the anterior and practically all of the posterior pillar, with scar tissue in the pharynx. The voice was quite husky from impaired mobility of the structures of the right side of the larynx. Fortunately

Figure 3

there did not seem to be the tendency to contraction so often seen in scar tissue, particularly in syphilis.

I saw the patient about the first of the present year, and she still shows evidences of the destruction of the parts as described above.

Case II.—C. L., male, 26 years of age, was seen first on January 23, 1908. He gives a rather vague specific history, but his antecedents are otherwise negative. For three weeks he has had a cough and recently considerable pain on swallowing and talking. His pharynx is covered with a rather thin and somewhat tenacious exudate which, when detached, reveals a bleeding surface beneath. There is no glandular involvement and no rise of temperature. The breath is somewhat unpleasant.

Smears submitted to Dr. Murray for examination showed numerous fusiform bacilli and spirilla.

The exudate spread and thickened in spite of every effort to control it, and ultimately covered the left tonsil and faucial pillars, the

whole posterior pharyngeal wall as far down as could be seen, the right tonsil, uvula and superior surface of the epiglottis. There were also scattered areas of exudate in the naso-pharynx. The ulceration was large in superficial extent, but not deep. Pain in swallowing was extreme and the patient's nutrition suffered correspondingly, but the constitutional disturbance was otherwise insignificant. After six weeks he was discharged practically recovered.

Case III.—V. B., male, age 4 years, was seen at my clinic in the Brooklyn Eye and Ear Hospital in January, 1909. He had complained for four days of intensely sore throat and had declined to attempt to eat. There was marked swelling and tenderness of the submaxillary glands on both sides. The temperature was normal.

Figure 4

A culture was made for the health department, which brought a negative report, and smears were submitted to Dr. Murray, who reported an almost pure culture of fusiform bacilli and spirilla. I was fortunate in securing a sketch of the throat which is very accurately represented in the picture, as the patient has not returned to the clinic and cannot be located. In neither of the foregoing cases could any possible method of infection be traced.

From this limited experience I would conclude that Vincent's angina has at least the potentialities of a very serious disease, that we have at present no very satisfactory means of combating its course, and that the patients recover in their own good time.

No. 170 Clinton Street.

THE REMOVAL OF LARYNGEAL TUMORS IN THE LEFT LATERAL POSITION.

BY RICHARD H. JOHNSTON, M.D., BALTIMORE.

The separable speculum of Jackson is a valuable instrument for examining the larynx under cocaine anesthesia and for removing tumors and tissues under general anesthesia, provided the lesion is unusually long incision had to be made. As is usually the case, it situated on the posterior wall or the posterior half of the vocal cords. When the growth is situated anteriorly, the instrument sometimes fails us. Under general anesthesia with the head extended, the muscles of the neck are held in an abnormal position and this adds to the difficulty of working in the larynx. With the patient in the supine position, the force required to pull the adult epiglottis and tongue upward is so great that it cannot be long continued by the operator. If the speculum be entrusted to an assistant, it is apt to be held not just right, and this interferes seriously with operative maneuvres. Consequently I believe the separable speculum is more valuable when used with cocaine anesthesia.

We find patients occasionally with growths or thickenings in the most anterior part of the larynx, who will not or cannot be successfully treated by either the indirect or direct methods. It may be that such patients have short, thick necks and large incisor teeth, making direct laryngoscopy under local anesthesia practically impossible, or they are so nervous that every attempt to introduce an instrument into the mouth fails. In this class of patients the instruments devised by Dr. H. P. Mosher will be found most valuable. The patient is anesthetized with ether; the head rests on the table in the left lateral position, so that the left cheek is as near the table as possible, while the chin is slightly flexed. The mouth is held open by a gag until the spatula end of the instrument reaches the base of the tongue. The handle is held in the left hand, leaving the right hand free for operating. A little manipulation brings the epiglottis into view; the spatula is passed behind it, and at the same moment the handle is forced up, bringing the body of the instrument strongly against the left upper bicuspid teeth. The larynx comes into view and is apparently about four inches from the upper teeth. If the entire larynx is not seen, an assistant pushes the thyroid cartilage backward. With cutting forceps the smallest tumor can now be

thoroughly removed. Because of the nearness of the larynx, operative procedures are more certain than with the mirror. In the same way the pyriform sinuses or the upper end of the esophagus can be examined if other methods fail.

In the month of July, 1908, a girl, 21 years old, came to the Presbyterian Hospital, complaining of hoarseness of several months duration. Five years before a papilloma was removed from the anterior part of the larynx. In June two attempts at removal at another hospital were only partially successful. A piece of the growth was removed at the first sitting with Krause's forceps. The patient then for some reason became so nervous that it was impossible to introduce the forceps into the larynx. Direct laryngoscopy was then tried with no better result. Having just gotten a set of Mosher's instruments, I proposed that we try to remove the growth under ether anesthesia. The patient's consent was readily obtained. She was anesthetized, the head turned to the left, the chin flexed and the instrument introduced. The larynx was soon brought into view and the growth removed with cutting forceps The method is destined to be of great value, and Dr. Mosher deserves credit for perfecting it.

919 North Charles Street.

Tuberculosis of the Larynx, with Report of Cases. E. H. CARY. *Medical Herald*, Feb., 1909.

The leading point of this paper is that "the prognosis is more favorable in cases which have advanced beyond the accepted view, if these individuals can be brought under the tender mercies of the most favorable surroundings, * * * maximum amount of sunshine, minimum amount of dust, proper food and rest."

The discussion elicited a consensus of opinion in agreement with the author, and recital of cases to prove this; i. e., "Tuberculosis of the larynx is just as curable as tuberculosis of the lungs if the infection is treated early, and the patient put under intelligent treatment for tuberculosis; not relying on local applications to the larynx alone." EATON.

RANULA.*

BY JOSEPH C. BECK, M. D., CHICAGO.

Helen G., 8 years old. A swelling in her mouth just underneath the tongue had been noticed for the past year. Teeth very bad, otherwise well. Examination revealed a smooth swelling, filling out the whole floor of the mouth and pushing the tongue upward, thus preventing the closure of the mouth. The swelling is soft and not painful. Diagnosis: Ranula, possibly both sides. The illustration shows the patient before operation.

Under general anesthetic I made an incision along the floor of the mouth over the greatest prominence of the tumor and resected it

submucously, which was not very difficult to accomplish by means of blunt-pointed scissors.

The cyst was accidentally punctured, fortunately near the completion of the enucleation. The puncture caused the discharge of a watery secretion. The sac was very easily removed, and the wound sewed up. It proved to be only unilateral, but extended to the opposite side. I took care not to destroy the normal ostium. The recovery was uneventful. It is interesting to note that these conditions are not common in children. Keen says they are rare in that period of life.

No. 1220 North Clark Street.

*Presented at the meeting of the Chicago Laryngological and Otological Society held on October 13th, 1908.

CHRONIC INTERSTITIAL OTITIS, OR CHRONIC MIDDLE-EAR CATARRH AND OTOSCLEROSIS.*

BY W. SOHIER BRYANT, A. M., M. D., NEW YORK.

The object of this paper is to justify the author's opinion that a single fundamental pathological condition underlies the changes of the middle ear formerly classified under the two headings, chronic middle-ear catarrh and secondary otosclerosis. This condition, he thinks, is appropriately described by the term chronic interstitial otitis. It is the author's opinion that secondary otosclerosis, the type associated with middle-ear changes, is the result of the same interstitial inflammation which affects the connective tissue of the middle ear in chronic middle-ear catarrh. In secondary otosclerosis, however, the effects of the inflammation have invaded the underlying bone. The author also thinks that, clinically, even in the cases with hereditary history, otosclerosis is usually of the secondary type. He believes that the heredity is not a quality of the otosclerosis but that otosclerosis depends upon an hereditary defect of the system which predisposes to disturbed circulation of the mucoperiosteum and to otosclerotic changes.

Chronic interstitial otitis is a condition of the middle ear which commences with chronic congestion of the mucous membrane or mucoperiosteum. Sequent to this congestion occur round-celled infiltrations resulting in fibrosis of the membrane, contraction of the fibrous tissue and anemia consequent on the compression of the blood vessels. The congestive, infiltrative and fibrotic stages may, however, be omitted, leaving anemia to take the primary place in the cases formerly classified under otitis media catarrhalis insidiosa. Last of all, degenerative changes take place. The final changes caused by the anemia include atrophy, degeneration and calcification. The diminished blood supply in the bone underlying the affected mucoperiosteum brings about bone absorption, osteoporosis and hyperostosis. Although these changes in the bone have been described by many writers on the subject, there has been as yet no entirely satisfactory etiological explanation. The foundation for the author's explanation rests on (a) an histological analogy and (b) on his clinical experience.

*Read before the Thirteenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology held at Cleveland, Ohio, August 27-29, 1908.

The histological analogy of the bone lesions of otosclerosis is found in the histological identity of these lesions with certain bone lesions occurring in later syphilis. The syphilitic bone changes are dependent on primary vascular changes in the periosteum which cause a diminished blood supply to the bone, followed in turn by absorption of the old bone and the growth of new bone. The author thinks that the bone changes of the labyrinth in secondary otosclerosis can be explained on the basis of antecedent mucoperiosteal anemia. Familiar facts are the vascular changes of the mucous membrane and mucoperiosteum of the middle ear and their results in infiltration, fibrosis, contraction, anemia, atrophy, and degeneration. The author thinks that these changes, occurring in the mucoperiosteum of the outer labyrinthine wall in predisposed individuals, cause bone changes within the osseous capsule identical with the changes caused by a similar alteration of the periosteal blood supply in other bones due to the syphilitic infection.

The clinical foundation for the author's etiological explanation of secondary otosclerosis is derived from a number of years' clinical experience with a large amount of material. This experience is exemplified in the following series of two hundred successive cases of chronic interstitial otitis.

This series of cases has been almost entirely treated on the basis of disturbed circulation. Improvement in hearing is shown in the otosclerotic class as well as in the cases of chronic middle-ear catarrh. All cases with acute symptoms were carefully excluded from this series, and every case that had any sign or history of aural suppuration was rejected. The selected cases all showed a relative increase of bone conduction indicating some lesion of the sound-conducting apparatus located somewhere between the external canal and the perilymph. All the cases showed a rise of the low limit of tone perception.

Of the cases, one hundred and twenty-four were seen only once or twice and then passed from observation. These patients were satisfied with one or two treatments. They came for some complaint other than interstitial otitis, or were quickly relieved, or were only seen in consultation. These cases therefore were not seen enough to furnish a clinical description of the course of the ear affection.

The two hundred cases represent a proportion of one hundred and fifty cases of chronic interstitial otitis per one thousand ear cases examined. Ninety-three cases was the proportion of chronic interstitial otitis per one thousand cases examined that received no pro-

longed ear treatment. Fifty-seven cases was the proportion of chronic interstitial otitis per one thousand cases examined that received extended treatment for chronic interstitial otitis.

An analysis of the seventy-six cases that allowed more careful study gives the following data: thirty-four cases gave a typical picture of otosclerosis. The other forty-two cases had abnormalities of the tympanic membranes and tubes. Age of patients: forty were over forty years of age; thirty-six, under forty years of age; twenty-two were between forty and fifty years; twelve, between fifty and sixty years; five, between sixty and seventy years, and one between seventy and eighty years.

The cases had the following length of history of failing hearing: two cases under one year; five, between one and two years; eleven, between two and five years; nine, between five and ten years; twelve, between ten and twenty years; four, between twenty and thirty years; two, between thirty and forty years; one, between forty and fifty years; eight, "several years"; twenty-two, "many years."

The method of treatment used was intended to affect favorably the tympanic circulation. It was chiefly intranasal, sometimes constitutional tonic, occasionally local tympanic. Following are the results of treatment: hearing slightly improved, two cases; improved, forty-three cases; much improved, twenty-seven cases; considerable decrease of hearing in spite of treatment, one case; slight decrease of hearing, two cases; unchanged, one case. Total improvement, seventy-two cases, or ninety-five percent.

While the seventy-six cases were under observation, which for most of the cases has been for a period exceeding two years, the improvement brought about was maintained in all but two cases. Of the three cases that showed decrease of hearing after treatment, one was fifty-three years old and very deaf, with opaque membranes and occluded tubes; one was twenty-seven years old, and heard well with normal membranes and open tubes; one was twenty-three years old and slightly deaf, with transparent membranes and open tubes.

Long history of or degree of deafness did not affect the favorable prognosis for the beneficial results of treatment.

All the hearing tests were for air conduction.

No.	Age. Years	History	Membrana Tympani	Tuba Auditiva	A. D.	Watch A. S.
1	54	many years.	opaque	open	0	0
2	40	7 years	cloudy	open	0	0
3	46	2 years	fairly normal	some obstruc.	2½ in.	4 in.
4	38	15 years	thin	open	0	0
5	48	several yrs.	slight thickening	slight obstruc.	14 in.	48 in.
6	39	many years.	calcified	open	0	0
7	67	many years.	white	slight obstruc.	0	0
8	63	3 years	translucent	open	9 in.	22 in.
9	24	1 year	normal	normal	0	0
10	74	many years.	normal	normal	0	0
11	47	18 years	normal	normal	15 in.	4 in.
12	47	18 months.	slight thickening	closed	0	0
13	46	20 years	normal	normal	0	0
14	35	5 years	translucent	open	0	0
15	42	2 years	translucent	slight obstruc.	10 in.	21 in.
16	28	4 years	normal	slight obstruc.	9 in.	11 ft.
17	50	20 years	thin	open	0	0
18	45	many years.	thin	open	0	0
19	27	3 months.	thin	open	25 ft.	20 ft.
20	35	many years.	normal	normal	0	0
21	53	many years.	opaque	slight obstruc.	loud voice only	
22	37	16 years	thin	open	0	0
23	46	30 years	normal	normal	½ in.	2½ in.
24	17	2 years bad.	translucent	closed	4 in.	5 in.
25	50	25 years	thin	open	0	0
26	36	many years.	depressed	open	0	0
27	38	15 years	thin	open	0	0
28	41	many years.	thin	open	17 in.	0
29	32	several yrs.	opaque	open	14 in.	16 in.
30	23	10 years	normal	normal	18 in.	5 in.
31	24	4 years	fair, translucent	open	0	4 in.
32	49	many years.	thin	open	0	0
33	37	1 year	translucent	slight obstruc.	54 in.	3 in.
34	35	4 years	white, retracted	slight obstruc.	nothing by air.	
35	67	8 years	white	open	0	0
36	45	12 years	translucent	open	0	0
37	50	many years.	translucent	slight obstruc.	14 in.	12 in.
38	48	a year	normal	normal	10½ in.	11 in.
39	69	8 years	calcified	open	0	0
40	37	10 years	opaque, flat	consid. obstruc.	extremely little	
41	50	16 years	thickened, opaque	open	0	16 in.
42	38	many years.	slightly opaque	open	9 in.	21 in.
43	47	34 years	flat, opaque, retract'd.	closed	0	0
44	14	11 years	depressed, opaque	consid. obstruc	7½ ft.	8 in.
45	49	many years.	opaque	open	0	0
46	6	6 years	translucent	slight obstruc.	2 in.	4 in.
47	34	many years.	translucent	open	0	0
48	16	5 years	opaque, depressed	open	3 in.	3 in.
49	41	15 years	translucent	open	0	0
50	54	45 years	white, opaque, depr'd.	open	0	0
51	58	many years.	opaque, contracted.	open	only very loud sounds close to ear	
52	27	several yrs.	translucent	slight obstruc.	9 in.	5 in.
53	37	many years.	normal	normal	9 in.	78 in.
54	47	several yrs.	translucent	slight obstruc.	4 in.	2½ in.
55	60	many years.	translucent	open	0	0

No.	Politzer's A. D.	Acoumeter A. S.	Hearing. High tone limit A. D.	Low tone limit A. D.	High tone limit A. S.	Low tone limit A. S.
1	1 in.	0				
2	¾ in.	½ in.	78000 S. V.	118 S. V.	78000 S. V.	118 S. V.
3						
4	6 in.	1 in.	46000 S. V.	156 S. V.	46000 S. V.	156 S. V.
5						
6	2 in.	0				
7	25 in.	7 in.	20000 S. V.	102 S. V.	29000 S. V.	
8						
9	12 in.	0				
10	10 ft.	27 in.				
11						
12	0	4 in.	fair	poor	fair	poor.
13	5½ in.	12 in.	29000 S. V.		46000 S. V.	
14	3 in.	2½ in.	38000 S. V.	256 S. V.	38000 S. V.	256 S. V.
15						
16			above 98 S. V.			normal.
17	0-0	½ in.				
18	0	7 in.				
19			normal	normal	normal	normal.
20	8 in.	1 in.	normal	128 S. V.	46000 S. V.	256 S. V.
21	0.	1½ in.				
22	0	0				
23						
24						
25	5 ft.	40 in.	lowered	256 S. V.	lowered	128 S. V.
26	30 in.	1 in.	much raised.			m'ch rais'd
27	20 in.	25 in.	very good	much raised.	very good.	m'ch rais'd
28		3 in.				
29						
30			78000 S. V.	67 S. V.	78000 S. V.	256 S. V.
31	27 ft.		90000 S. V.	raised	90000 S. V.	raised.
32	12 in.	4 in.				
33			slightly lowered	raised	slightly lowered.	raised.
34	nothing by air.			Paracusis of	Willis	
35	4 in.	3 in.	fair	256 S. V.	fair	256 S. V.
36	1 in.	1½ in.	26000 S. V.	raised	42000 S. V.	raised.
37						
38			41800 S. V.	67 S. V.	50000 S. V.	26 S. V.
39	7½ in.	5½ in.	30000 S. V.	67 S. V.	46000 S. V.	67 S. V.
40	hears extremely little					
41	23 in.					
42						
43		0	2048 S. V.	1024 S. V.	4096 S. V.	512 S. V.
44						
45	6 in.	4 in.	64000 S. V.	above 36 S. V.	46000 S. V.	above 36 S. V.
46						
47	12 in.	120 in.				
48			raised			raised.
49	3 ft.	7 in.				
50	0	0	18600 S. V.	4096 S. V.	18600 S. V.	4096 S. V.
51	only very loud sounds close to ear					
52			44000 S. V.	well heard	29000 S. V.	well heard.
53			46600 S. V.	196 S. V.	54000 S. V.	normal.
54						
55	14 in.	84 in.				

No.	Treatment.	Time under treatment.	After treatment. Watch. A. D.	Watch. A. S.	Politzer's A. D.	Acoumet'r A. S.
1	nasal	3 wks.	0	0	72 in.	0
2	nasal	4 days.	0	0	13 in.	5 in.
3	nasal	19 mos.	3 in.	4½ in.		
4	nasal, general, local	5 wks.	0	0	42 in.	5 in.
5	nasal, general, local	7 days.	60 in.	72 in.		
6	nasal	1 month.	18 in.	0		0
7	nasal	2 weeks.	0	0	5 ft.	14 ft.
8	nasal	4 mos.	48 in.	54 in.		
9	nasal	2 mos.	6 in.	0	8 ft.	0
10	nasal	12 days.	0	0	15 ft.	42 in.
11	nasal	3 years.	84 in.	48 in.		
12	nasal	12 days.	0	0	30 in.	24 in.
13	nasal, general	4 years.	0	0	9 in.	24 in.
14	nasal	3 weeks.	0	0	13 in.	6 in.
15	nasal	1 month.	36 in.	108 in.		
16	nasal	5 mos.	16 in.	0		0
17	nasal and local	2½ yrs.	0	0	on ma't'id	6 in.
18	nasal and local	6 mos.	nothing	0	0	12 ft.
19	nasal, general, local	3½ yrs.	36 in.	36 in.		
20	nasal	3 mos.	0	0	29 in.	4 in.
21	nasal, local	3½ yrs.	loud voice.	0	loud voice	
22	nasal, general, local	2 mos.	0	0	0	0
23	nasal, general	1½ mos.	5 in.	3½ in.		
24	nasal, local	1 1-3 yrs	23 in.	13 in.		
25	nasal	3 yrs.	36 in.	7 in.		
26	nasal	9½ mos.	0	0	35 in.	2 in.
27	nasal and local	6 mos.	0	0	54 in.	120 in.
28	nasal and local	3 mos.	38 in.	0		48 in.
29	nasal	2¼ yrs.	19 in.	52 in.		
30	nasal and general	1 month.	15 in.	3 in.		
31	nasal and local	10 mos.	0	24 in.	0	
32	nasal	1½ mos.	0	0	8 ft.	6 ft.
33	nasal and general	11 days.	60	14 in.		
34	nasal, general, local	26 days.	hears conversation			
35	nasal, local	6 mos.	0	0	7 ft.	4 ft.
36	nasal, local	4 mos.	0	0	8 in.	6 in.
37	nasal	7 days.	16 in.	30 in.		
38	nasal	7 mos.	19 in.	18 in.		
39	nasal	2 years.	0	0	19 in.	10 in.
40	nasal, general, local	2 years.	0	0	0	0
41	nasal	5 days.	0	60 in.		
42	nasal	2 days.	24 in.	60 in.		
43	nasal	8 mos.	0	0	15 in.	27 in.
44	nasal and local	1 year.	20 ft.	0		
45	nasal	15 mos.	0	0	72 in.	7 in.
46	nasal	5½ mos.	10 ft.	10 ft.		
47	nasal, general	2 mos.	0	0	60 in.	120 in.
48	nasal	6 weeks.	3¾ in.	6 in.		
49	nasal	1 month.	0	0	9 ft.	54 in.
50	nasal, local	9 mos.	0	0	0	0
51	nasal	8 mos.	ordin. voice at 4 ft.		ordin. voice at 4 ft	
52	nasal and local	3 days.	20 ft.	10 in.		
53	nasal and general	8 mos.	18 in.	144 in.		
54	nasal	2 days.	7 in.	6 in.		
55	nasal	3 days.	240 in.	264 in.		

No.	High Tone Limit. A. D.	Low Tone Limit. A. D.	High Tone Limit. A. D.	Low Tone. Limit. A. S.	Remarks.
1					much imp. maintained.
2					improvement maintained.
3					improvement maintained.
4	54,000 S. V.		54,000 S. V.		improvement maintained.
5					improvement maintained.
6					much imp. maintained.
7					much imp. maintained.
8					much imp. maintained.
9					much imp. maintained.
10					much imp. maintained.
11					much imp. maintained.
12					much imp. maintained.
13	31,000 S. V.	128 S. V.	36,000 S. V.	113 S. V.	slight improvement.
14					improvement maintained.
15					much imp. maintained.
16					improvement maintained.
17					improvement maintained.
18					much imp. maintained.
19					considerable decrease.
20					improvement maintained.
21	43,200 S. V.	128 S. V.	25,200 S. V.	67 S. V.	slight decrease.
22					no change.
23					improvement maintained.
24	46,000 S. V.	128 S. V.	46,800 S. V.	256 S. V.	improvement maintained.
25	44,000 S. V.	98 S. V.	34,400 S. V.	128 S. V.	much imp. maintained.
26					imp., Pol. acoum. 7 ft.
27					much imp. maintained.
28					much imp. maintained.
29					imp. very variable.
30					slight decrease.
31					much imp. maintained.
32					much imp. maintained.
33					improvement maintained.
34	2048 S. V.	512 S. V.	4096 S. V.	512 S. V.	much imp. maintained.
35					much imp. maintained.
36					improvement maintained.
37					improvement maintained.
38					improvement maintained.
39					improvement maintained.
40	13,160 S. V.	6960 S. V.	13,920 S. V.	6960 S. V.	slight improvement.
41					improvement maintained.
42					much imp. maintained.
43	40,000 S. V.	268 S. V.	40,000 S. V.	256 S. V.	much imp. maintained.
44	55,600 S. V.	128 S. V.			improvement, mixed result
45					much imp. maintained.
46					much imp. maintained.
47					improvement maintained.
48					improvement maintained.
49					improvement maintained.
50	21,320 S. V.	4096 S. V.	19,800 S. V.	4096 S. V.*	improvement.
51	24,000 S. V.	128 S. V.	22,000 S. V.	128 S. V.	much imp. maintained.
52					much imp. maintained.
53	46,000 S. V.	256 S. V.	52,000 S. V.	28 S. V.	improvement maintained.
54					improvement maintained.
55					much imp. maintained.

No.	Age, Years.	History	Membrana Tympani.	Tuba Auditiva.	Watch A. D.	Watch A. S.
56	55	many years	white, flat	open	bone	1¼ in.
57	44	several years	translucent	open	7 in	11 in.
58	53	many years	translucent	open	0 in	0 in.
59	32	several years	white, opaque	normal	72 in	2½ in.
60	55	10 years	translucent	open	2½ in	4 in.
61	35	2 years*	normal	open	17 in	3 in.
62	31	many years	thin	occluded—one	1½ in	0 in.
63	35	6 years	normal	normal	0 in	0 in.
64	34	several years	white	occluded	27 in	25 in.
65	30	many years	thin	normal	2 in	12 in.
66	50	5 years*	milky	partially occluded	3 in	4 in.
67	28	20 years	translucent	open	2¾ in	1¾ in.
68	31	many years	dark translucent	obstructed	13 in	7 in.
69	49	6 weeks	dark, opaque	normal	3 in	8 in.
70	47	5 years	translucent	open	3½ in	6 in.
71	29	2 years	flat, gray	open	29 in	20 in.
72	40	1 year	gray	slightly obstructed	17 in	54 in.
73	32	10 years	translucent	open	1½ in	1¾ in.
74	21	several years	flat, depressed	occluded	12 in	0 in.
75	25	2½ years	translucent	occluded	10 in	12 in.
76	45	2 years	white	open	¼ in	1 in.

No.	Politzer's A. D.	Acoumeter. A. S.	HEARING. High Tone Limit. A. D.	Low Tone Limit. A. D.	High Tone Limit. A. S.	Low Tone Limit. A. S.
56						
57			40,000 S. V.	67 S. V.	42,000 S. V.	61 S. V.
58	3 in.	in concha	34,000 S. V.	128 S. V.	25,400 S. V.	128 S. V.
59			34 S. V.		46,000 S. V.	52 S. V.
60			50,400 S. V.	above 134 S. V.	58,000 S.V.	above 134 SV
61			48,000 S. V.	174 S. V.	40,000 S. V.	134 S. V.
62	3 in.		59,400 S. V.	128 S. V.	40,800 S. V.	128 S. V.
63	3 in.	22 in.	23,712 S. V.	8192 S. V.	38,680 S. V.	128 S. V.
64			48,000 S. V.	54 S. V.	45,000 S. V.	54 S. V.
65			40,000 S. V.	256 S. V.	46,000 S. V.	128 S. V.
66			21,600 S. V.	52 S. V.	38,000 S. V.	52 S. V.
67			46,600 S. V.	256 S. V.	42,800 S. V.	512 S. V.
68						
69						
70			40,300 S. V.	67 S. V.	36,660 S. V.	67 S. V.
71			47,000 S. V.	128 S. V.	38,600 S. V.	128 S. V.
72			33,840 S. V.	36 S. V.	34,600 S. V.	38 S. V.
73						
74						
75						
76						

No.	Treatment.	Time under treatment.	Watch. A. D.	Watch. A. S.	Politzer's Acoumeter A. D.	Politzer's Acoumeter A. S.
56	nasal	1 month	1½ in	2½ in		
57	nasal, general	1½ months	13 in	16 in		
58	nasal, general	2 weeks	0	0	8 in	4 in
59	nasal	2 months	0	4 in		
60	nasal	5 weeks	4½ in	6½ in		
61	nasal, local	6 weeks	21 in	9 in		
62	nasal	5 weeks	7 in	0	9 in	
63	nasal	2 months	0	0	7 in	26 in
64	nasal	2 weeks	7½ ft	10 ft		
65	nasal	5 days	1¾ in	90 in		
66	nasal	1 month	7 in	9 in		
67	nasal	2 months	4½ in	3½ in		
68	nasal	1½ months	48 in	108 in		
69	nasal	1 month	15 in	48 in		
70	nasal	1 year	5 in	9 in		
71	nasal	4 days	31 in	32 in		
72	nasal	10 days	108 in	improved		
73	nasal	1 month	2½ in	3½ in		
74	nasal	10 months	30 in	0		
75	nasal and general	2 weeks	80 in	20 in		
76	nasal and general	1 week	2½ in	4 in		

No.	High Tone Limit A. D.	Low Tone Limit. A. D.	High Tone Limit. A. S.	Low Tone Limit. A. S.	Remarks.
56					improvement maintained
57					improvement maintained
58					improvement, very variable
59			57,000 S.V.	36 S. V.	improvement maintained
60					improvement maintained
61	85,000 S. V.	128 S. V.	92,000 S. V.	128 S. V.	improvement maintained.
62					improvement maintained
63	38,880 S. V.	512 S. V.	34,340 S. V.	128 S. V.	improvement maintained
64	44,000 S. V.	54 S. V.	46,000 S. V.	54 S. V.	much imp. maintained
65					improvement maintained
66					improvement maintained
67	51,600 S. V.	196 S. V.	46,000 S. V.	196 S. V.	improvement maintained
68					much imp. maintained
69					improvement maintained
70	43,200 S. V.		42,800 S. V.		improvement maintained
71			43,000 S. V.		improvement maintained
72					much imp. maintained
73					improvement maintained
74					improvement maintained
75					improvement maintained
76					improvement maintained

Conclusion. Chronic interstitial otitis includes chronic middle-ear catarrh and secondary otosclerosis. The bone lesions of secondary otosclerosis are due to diminshed blood supply of the tympanic mucoperiosteum.

Clinically, otosclerosis appears to be of the secondary form. Chronic middle-ear catarrh and secondary otosclerosis yield to the same treatment independent of age, degree of deafness, or length of history.

The improvement following treatment is markedly permanent. The prognosis is good for improvement in chronic interstitial otitis.

No. 57 West Fifty-third Street.

OEDEMA OF THE LARYNX FOLLOWING AN INFECTION OF THE LOWER PHARYNX.*

BY M. D. LEDERMAN, M. D., NEW YORK.

At midnight, August 8, 1908, I was called in consultation to see Mrs. X., who was suffering from severe pain and difficulty in swallowing, with discomfort in breathing. About two weeks previously the patient had swallowed a chicken bone, and though at the time there was some soreness in the throat as the bone passed along the lower pharynx, no further annoyance was experienced and the incident was forgotten for the time being. Ten days later Mrs. X. noticed some pain on swallowing, and as this symptom increased, her medical attendant was called. Nothing abnormal was observed in the pharynx, and, as no elevation of temperature existed, further examination was not made. Owing to former rheumatic conditions, a diagnosis of rheumatic throat was given and suitable medication prescribed, together with applications of a hot alkaline gargle. The voice was not affected. As painful deglutition increased on the following day and some swelling on the left side of the neck appeared, a colleague was asked to see the case. Nothing unusual was discovered in the pharynx, but on examining further, a serous infiltration of the left ary-epiglottic fold was seen, which accounted for the painful swallowing. As these symptoms increased, and as respiration was being affected, I was asked to see the patient.

Mrs. X. was about 50 years of age, of short stature, with a full neck, and seemed quite apprehensive about her condition, as a friend of the family with similar symptoms had succumbed to a septic affection of the throat. Examination revealed a tumefaction in the left side of the neck, quite tender to pressure. It was situated below the ramus of the jaw, midway between the chin and external angle. This swelling had increased in the past forty-eight hours. It was localized, and the surrounding tissues were not involved. The pharynx appeared slightly congested but otherwise healthy. With the laryngeal mirror a decided oedema of the lingual surface of the epiglottis was seen, which extended to the left side of the pharynx. The ary-epiglottic fold of the same side was also oedematous, closing over one-half of the superior opening of the

*Reported to the Section on Laryngology and Rhinology of the New York Academy of Medicine, October 28, 1908.—See The Laryngoscope, December, 1908, p. 995.

larynx on the same side. The anterior third of the left cord was visible at this examination and was not involved. The infiltration was bluish-gray in color, similar to what is seen in mucous membranes when affected in renal disease or diabetes. There was an inflammatory zone in the lower pharynx on the left side, on a plane with the ary-epiglottic fold, but no definite lesion could be detected. Though considerable annoyance was experienced by the patient in attempting to get rid of the increased secretion in the throat, the respiration was not sufficiently embarrassed to prompt immediate surgical relief.

As no urinary analysis had been made I advised that it be done as soon as possible in order to eliminate the possibility of such a factor. The tentative treatment consisted in the administration of five grains of calomel, followed in three hours by a brisk saline. The patient was placed in a semi-sitting posture in bed, ice was applied to the neck, and small pieces given continually until some relief was obtained. A spray of adrenalin chloride (1-3000) was employed every hour, or more frequently if dyspnoea increased during the night. The family were fortunate in having the services of a partially trained nurse at this hour (midnight), as the attack occurred during the summer and railroad connections with the city had ceased until morning.

Mrs. X. passed a fairly comfortable night, being disturbed by the accumulation of mucus and having the spray of adrenalin applied during those periods with good effect.

The next day (the fourth day of the illness), under cocaine anesthesia, inspection showed that the oedema had extended further into the laryngeal cavity, infiltrating the false cord on the left side, and hiding from view the vocal cord on the same side. The swelling on the lingual surface of the epiglottis had also increased, and the voice and respiration were now affected. The patient complained that the lump in her throat felt much larger than on the preceding day.

On careful examination an area in the lower pharynx on the left side was detected, which appeared more prominent than the surrounding tissue. As nothing of importance was found in the urine, and recalling the previous history of trauma, it was decided to make an exploratory incision into this site of prominence. Three perpendicular incisions were made with a curved knife, and a few drops of pus appeared. The wounds were then dilated by means of a long, narrow curette. An antiseptic spray was ordered, and the former treatment continued.

The temperature never rose more than a degree at any time during the illness.

The same evening there was a noticeable decrease in the infiltration and subjective symptoms. Mrs. X. remarked that the fullness in her throat was less annoying, and she was able to take a little liquid nourishment, though it required some effort on her part to complete the act of swallowing.

After forty-eight hours there was a decided change for the better, and though the knowledge of the fatal result in the case before mentioned kept the patient in a very anxious frame of mind, the fact that the symptoms were steadily improving, and the reassuring statements of the attending medical advisers assisted materially in causing a brighter mental state. Each day the wounds were dilated under cocaine, so that no pocketing of pus could take place. This treatment was applied for five successive days.

On the third day following the opening of the abscess, the external swelling had decreased, and in a week's time had disappeared. In twelve days the infected area had healed, and further local treatment was discontinued, except for an antiseptic spray after eating.

Unfortunately, no bacteriological examination was attempted. From the clinical aspect of the case we can readily surmise that the infection must have been of a mild character, as there was only a slight rise of temperature, without symptoms of absorption. No involvement of the cervical lymphatics was found, as the swelling in the neck was due to the abscess itself.

Acute infectious inflammation in this region, however, when caused by streptococci, is serious and frequently a fatal disease—running a very rapid course. Suppuration extends quickly, and in spite of surgical aid the patient frequently succumbs to the severe sepsis. The rapid course of the disease, with its profound systemic disturbance and its spreading infiltration, is characteristic of the phlegmonous type.

The writer was fortunate enough to see and treat a case of so-called "Angina Ludovici" (infectious phlegmon attacking the floor of the mouth), following an acute suppurative otitis media.* The symptoms appeared on the third day of the ear trouble, and—curious to note—the aural symptoms had decidedly improved. The left side of the neck was much swollen, painful to the slightest pressure, very tense to the finger, without fluctuation. The patient's expression was one of anxiety and great suffering. The tongue

*Medical Record, October 8, 1898.

was pushed over the edge of the lower teeth on account of the swelling of the sub-lingual tissues. Deep incisions along the floor of the mouth on the affected side allowed the exit of considerable pus, and within forty-eight hours all danger had passed.

In the case which prompted these remarks, the laryngeal oedema was secondary to the infection of the lower pharynx. Trauma of the mucous membrane, due to the passage of the chicken bone, was the exciting cause.

No. 58 East 75th Street.

Paralysis of the Crico-thyroid Muscle. HOLGER MYGIND. *Hospitalstidende*, 1906, p. 789.

Mygind has found only thirteen cases in the literature. He himself has observed four, and these were very much like Mackenzie's and Lublinski's. The cause in three cases was a bulbar affection, and in the fourth was unknown. Mygind calls attention to a symptom which has been mentioned earlier, namely, a rapid tiring of the voice during intonation, which was found in all four patients. The glottis was placed awry in the horizontal plane, in such a manner that its foremost end pointed to the left when the right crico-thyroid muscle was paralyzed, and vice versa. With involvement of both sides, the rima glottidis appeared as an irregular, billowy line. The paralyzed vocal cords showed numerous irregular recesses and foldings, such as to give the appearance of a slack sail that flutters before a weak wind. Even during minimal deep respiration, the vocal cords were taken up in the lateral wall of the laryngeal space, completely disappearing from sight, and the reflex irritability was abolished or diminished. KIAER.

Dr. Joseph C. Beck has lately been elected to a professorship in the Chicago Eye, Ear, Nose and Throat College.

Dr. Francis R. Packard, of 1836 Pine Street, Philadelphia, has removed to No. 304 South Nineteenth Street, in that city.

Dr. Wolff Freudenthal, of New York City, has been elected a corresponding member of the Laryngological Society of Berlin.

REPORT OF A CASE OF TERATOMA OF THE TONSIL.

BY ROBERT D. JEWETT, M. D., WINSTON-SALEM, N. C.

The following case is reported simply on account of the unusual site of development selected by the tumor.

The patient, an infant of four months, was brought to my office December 17th, 1907, with the following history: When the child was only two weeks old the mother noticed that something would come up in its mouth whenever it cried or gagged, but would remain out of sight at all other times. It caused no cough and did not interfere with deglutition or respiration, although at times there was some rattling during sleep. Three or four days before the child was brought to me the growth came into the mouth and remained there.

On examination the child appeared healthy and well nourished. The growth protruded from the lips slightly, and instead of being an inconvenience, seemed to afford the child much pleasure, as it sucked it diligently. It was smooth and pinkish-white in appearance, was covered with soft, fine hair, and in consistency was about like the lobe of the ear. It appeared in shape somewhat like a golf stick, the head protruding between the lips while the handle could be traced back with the finger to the left tonsil where it had its origin. The tumor was about six cm. long, this being about equally divided between the head and the pedicle. The head was one and three-quarters cm. in thickness and the pedicle one cm.

A cold wire snare was slipped over it and passed well down to the tonsil, and an effort made to amputate the growth. It was impossible to do so, however, with the snare, so, leaving the wire in place as a guide, the tumor was amputated with scissors in the groove made by the wire. There was absolutely no hemorrhage then or afterward, no reaction or inconvenience of any kind, and the throat has remained normal since.

The following pathological report was kindly furnished me by Professor D. H. Dolley, of the University of North Carolina, to whom the specimen was sent:

"The specimen from the throat you sent is a teratoma, classified by Ziegler as of autochthonous origin, due to the misplacement of embryonic ectodermal tissue. A 'hairy polypus.'

"Microscopic examination of the tumor shows that it is covered with true skin, whose epidermis has a horny layer, with sweat and sebaceous glands, hairs and hair follicles. The parenchyma is composed of a fatty areolar tissue in the usual lobular arrangement. Section through the pedicle shows the same covering, though the sebaceous glands are larger and more numerous. Under the dermis are embedded numerous mucus glands. There are also many small bundles of voluntary muscle, running generally in the direction of the long axis of the tumor. In the pedicle also blood vessels and nerves are of fair size."

No. 312 Masonic Temple.

Luxation of the Arytenoid Cartilage. TETENS HALD. *Ugeskrift for Leeger*, 1906, p. 369.

A girl of fourteen, with chronic hoarseness, showed a luxation of the left articular crico-arytenoid. The arytenoid cartilage was turned over inwards and to the front, so that the corniculate cartilage projected into the right ventricular plica. The left vocal cord remained immovable in slight abduction. The right half of the larynx was normal, and cartilage and mucous membrane had an entirely normal appearance. KIAER.

Paradoxical Localization of Pain in the Throat. K. M. MENZEL. *Monatsschrift f. Ohrenheilkunde*, July, 1905.

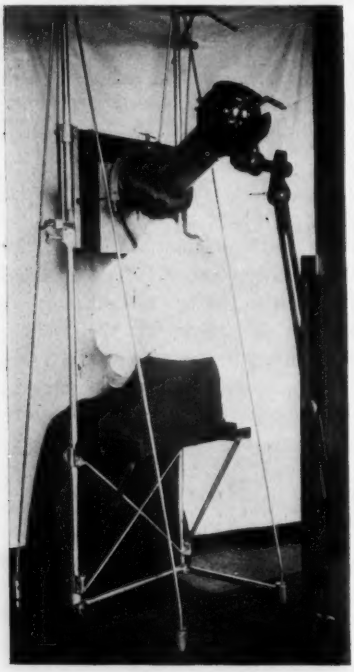
The author reports a case of tertiary ulcerations on the left side of the pharynx in which the pain was regularly referred to the right side of the neck. When the ulcerations were cauterized, the pain was increased; when they were cocainized the pain disappeared. This paradoxical transference of pain persisted throughout the course of the disease. At no time was any pain felt on the same side as the disease. YANKAUER.

SINUS SKIAGRAMS IN THE ERECT POSTURE.

BY SIDNEY LANGE, M. D., CINCINNATI.

The X-ray method of examining the pneumatic sinuses of the face has proven to be of distinct value in the recognition of sinus disease, especially in the examination of the frontal sinus.

The examination consists in resting the nose and forehead of the patient against the photographic plate and adjusting the X-ray



tube over the back of the head at a prescribed angle. But this position necessitates placing the patient upon his abdomen, a posture which is open to some objections, and which at my hands has interfered somewhat with the results. The table used for X-ray work is usually not upholstered, and is therefore very uncomfortable to rest upon. Female patients object to this prone position, while

children become very much alarmed. Indeed, adults are apt to become more or less apprehensive when placed face down upon a table with a heavy compression cylinder resting against the back of the head. The pressure upon the nose usually becomes painful before the examination is over, and the nasal and laryngeal secretions, which are always excessive in the class of cases presented for examination, collect in the nasal and pharyngeal passages, interfere with respiration and tend to make the patient restless.

Furthermore, if there be free fluid in the antrum or frontal sinus, it spreads out over the anterior wall of the cavity (when the patient is in the prone position), and gives no indication of its amount, whether completely or only partially filling the cavity. If the patient were in the erect posture, the amount of the fluid accumulation in the respective cavity would be indicated by the horizontal upper level of the fluid.

The accompanying illustration shows a method of overcoming these objections, making the examination with the patient comfortably seated, the head held erect and steady by a head bracket. The plate-holder admits of up and down adjustment. Alopecia is guarded against by a sheet of aluminum and a heavy piece of leather placed within the tube shield.

This chair was designed by the author primarily for the X-ray examination of the chest and abdomen with the patient in either the sitting or standing position. The plate-holder may be removed and a fluorescent screen substituted when a fluoroscopic examination is desired.

No. 22 West Seventh Street.

Laryngeal Spasm Associated with Cystic Degeneration of the Middle Turbinated. HEINRICH HALASZ. *Monatsschrift f. Ohrenheilkunde*, July, 1905.

A woman fifty years of age had suffered for eight years from asthma, accompanied by attacks of laryngeal spasm. Little attention had been paid to the nasal obstruction of which the patient complained. The author found a very large cystic middle turbinated which obstructed the entire nostril. After its removal, the asthma as well as the laryngeal symptoms promptly disappeared.

YANKAUER.

PERICHONDRITIS OF THE AURICLE TREATED SUCCESSFULLY BY INJECTION OF FIFTY PERCENT ALCOHOL.

BY H. GIFFORD, M. D., OMAHA, NEBRASKA.

On about the first of October, 1908, C. L., a well preserved but rather anemic looking man of 72 years, consulted me on account of a swelling of the left auricle which had been coming on gradually for two or three weeks. There was no history of any trauma. Examination showed the right auricle normal, while the left was swollen in its upper, outer half to three times its natural thickness. There was no redness nor had there been any pain. Fluctuation was apparent, and a puncture with a cataract knife evacuated a dram or two of very thin light-colored pus. No culture nor examination was made of this fluid, but, as the swelling had reached the same size again within forty-eight hours, another puncture was made, evacuating, this time, slightly bloody serum from which there grew a pure culture of the white pus coccus. This fluid was evacuated several times at intervals of two or three days, but always returned; and as, after two weeks, there was absolutely no improvement in this respect, the fluid was drawn off through a hypodermic needle and, after this, fifty percent alcohol was injected through the same needle so as to distend the cavity slightly. On withdrawing the needle, a little of this flowed out, but most of it, approximately a fluid dram, was retained in the cavity. This was followed by a moderate amount of redness and tenderness, but the reaction was not at all severe; and after four or five days was plainly on the decline. The fluctuation gradually disappeared, as did the thickening. After a month, the auricle showed no signs of containing any fluid, and was not at all red, with scarcely perceptible thickening. Patient has not been seen since, (i. e., up to December 28th, 1908), but, as he lives near by, he would undoubtedly have let me know if there had been any signs of a return of his trouble.

An apparently spontaneous cold abscess of the auricle is, I judge, a rare thing, since I have never seen it before. I regret that the pus obtained at the first evacuation was not examined for tubercle bacilli, since the pus cocci obtained at the next puncture may have been secondary. I was led to seek for some method of treatment different from the open incision by an experience which I had with mutilating perichondritis following a radical operation some years ago. One such experience goes a long way, and I wished to re-

duce to a minimum the danger of its being repeated. The use of the alcohol was suggested by the excellent results which I have obtained with it in the treatment of angiomata.

No. 567 Brandeis Building.

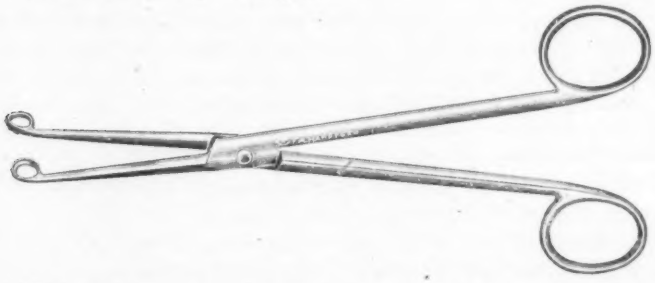
TONSIL SEPARATOR AND TONSIL FORCEPS.

BY FRANK C. TODD, M. D., MINNEAPOLIS.

The tonsil separator here shown has a dull edge. It is slightly cupped at the end. When it is used the tonsil is first grasped with the forceps, pulled out toward the median line of the throat and the separator used to push back the anterior pillar of the fauces. The capsule of the tonsil may then be readily seen, the dissection con-

tinued further to the posterior pillar, when a snare may be used to complete the removal of the tonsil in its capsule or in many cases the tonsil may be completely shelled out with the tonsil separator.

With this instrument we have the advantage of direct pressure being brought upon the tissues to be severed, and, having no cutting edge, hemorrhage should not occur, while the dissection may be easily and completely accomplished.



These tonsil forceps consist of two small rings, set at such an angle as to make the forceps fit in between the pillars of the fauces and grasp the tonsil without tearing it. The two edges of the ring come tightly together and pinch whatever tissue is engaged between the ring jaws.

No. 506 Donaldson Physicians' Building.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, February 24th, 1909.

HARMON SMITH, M. D., Chairman.

PRESENTATION OF CASES.

Case of Hysterical Aphonia. By JOHN MCCOY, M. D.

DR. MCCOY said that about five weeks ago he was called to one of the wards in Bellevue Hospital to see this woman's larynx. She had not been able to speak for several months, and could not articulate anything that could be understood. The cords would move in all directions, but when she attempted to phonate they would not come together, but remained open and she would blow through them. Just below the anterior commissure there is a thickened fold of membrane, and, thinking that that might have something to do with her inability to speak, he had her come to his clinic, where under slight anesthaesia he made pressure on the supra-orbital nerve, and showed that her voice was perfect. She then spoke loudly and freely.

DR. WILSON mentioned a case which came under his care last spring, which had existed for two and one-half years. The woman had not uttered a loud sound during that time. She was cured by the intra-laryngeal application of galvanism.

Case of Aphasia. By WOLFF FREUDENTHAL, M. D.

DR. FREUDENTHAL said that after reading on the programme that Dr. McCoy was to present a case of aphonia, he determined to bring this case as presenting something of a contrast. The man does not suffer from aphonia but from *aphasia hysterica.* He had some business trouble, and one day he began to stutter, and very soon lost the power of speech entirely. He can say *ah,* and open his mouth, but cannot put out his tongue. The doctor said that he had not been able to examine the larynx, but it was not necessary, for sometimes the man can pronounce when he wants to. He has seen many cases of aphonia, but this is the first case of hysteri-

cal aphasia that he has seen in a man of this age. One can see the effort he makes to speak. Different remedies had been tried, including a strong faradic current, which made him open his mouth, but it was impossible to see the larynx. There is no motor aphasia, for he can move all his muscles, walks all right, and can understand everything that is going on. It is simply a case of hysterical aphasia.

Dr. Leszynsky has examined the case and might be able to give some further details in regard to it from a neurological point of view.

Dr. W. M. Leszynsky said that on account of the unusual features in this case, Dr. Freudenthal had referred the patient to him and he was admitted to the hospital for further observation. The man has no aphonia, as he can enunciate clearly and distinctly all of the vowel sounds, but he has a complete motor aphasia. There is loss of the memory of co-ordinating the muscles utilized in the mechanism of speech. This is well shown when he attempts to open his mouth at command. He succeeds only to a slight degree, although he apparently makes the most energetic efforts. By forcible suggestion and persuasion, the mouth is fully opened. There is no trouble with the tongue or facial muscles. Solid food is masticated and swallowed in a normal manner. He understands all that is said to him, and he communicates with others in writing or pantomime. There is absolutely no agraphia. He can understand writing, and he is able to copy correctly and write from dictation. There is also a disturbance of his general sensibility; one can prick him all over the body and extremities with a pin or needle, and he does not seem to feel it at all. There is apparently some mental deterioration, however, as manifested by the meaningless smile that he frequently displays. The pupils and eyegrounds are normal, and in view of the fact that he has neither agraphia nor hemiplegia, the case must be considered as one of *hysterical mutism*. In patients with motor aphasia from organic cerebral disease, there is usually partial or complete agraphia, or there is some power of spontaneous utterance, though it may be jargon. Dr. Leszynsky said that he had seen a number of similar cases, though they are not common. In some instances, the speech has suddenly returned under primary ether anesthesia, but that method did not succeed in this case. The ultimate prognosis is good. Some cases are on record in which the power of speech was lost for ten years or more, and then suddenly regained. In three of his cases, the duration varied from two months to two years.

Dr. Chappell said that he had had some excellent results from treating these cases with the thermo-cautery, applied to the back of the neck.

Dr. Leshure told of a young woman who had several series of attacks of hysterical aphonia, from which she would gradually recover, without any particular treatment. Later she developed hysterical blindness, and could not open her eyes. He put a little cocaine under one of the lids and flashed a light in front of her face, and she said that she could see. This woman has a very neurotic temperament, and is subject to these peculiar attacks.

Dr. Freudenthal said that he had not used the thermo-cautery in this case, but would try it. He had, however, several times tried it on young women suffering from hysteria, but without any effect. He has had cases that have gone from one physician to another for many years, and were as hysterical after ten years of treatment as they were at the first.

Case of Peculiar Affection of the Lingual Tonsil. By Wolff Freudenthal, M. D.

The patient, a woman twenty-one years of age, was born in Russia and came to this country six years ago. Immediately afterward she commenced to have a sensation of fullness in the throat, but this did not annoy her much, especially as she developed a head cold. Afterward it was found that she was suffering from tuberculosis, and she was sent to Bedford Sanitarium for six or eight months, where Dr. Freudenthal examined her larynx. He found a large mass occupying the site of the lingual tonsil. He removed a piece, and it was reported to be lymphomatous, but he did not yet feel that he could rely upon that diagnosis. She felt easier after that, and left the sanitarium much improved in her general condition. A few days ago she returned to the clinic complaining of slight pain and a feeling of strong pressure on the throat. On examination a hard mass can be seen on the lingual tonsil between the epiglottis and the base of the tongue, the size of a small bird egg.

Dr. Freudenthal said that from what he had seen in similar cases—one shown before the Section years ago by Dr. Schwerdt—he was inclined to think it may be lupus. But it may be a parathyroid tumor. He would try to give the microscopical findings at the next meeting.

Dr. Smyth inquired if Dr. Freudenthal had been able to palpate the thyroid gland. He thought this tumor had the characteristics

of an accessory thyroid of the tongue. Its smooth rounded shape, its elastic feel without fluctuation, its dark color with its copious supply of blood vessels, together with its location at the base of the tongue in the vicinity of the foramen caecum, all pointed that way. These tumors usually occur in females, the age of this patient being well represented, and frequently exist for years without especial inconvenience, Dr. Warren, of Boston, reporting such a case of thirty years' duration. Thyroid tumors are interesting from the fact that they are often functionating, and have been proven capable of performing perfectly the function of an absent thyroid gland. Cases have been reported where myxedema has followed their removal. The method of removal has seemed to depend upon the fancy of the operator, the chief indication being the control of the hemorrhage. Dr. Smyth stated that he had seen three of these cases in the past year, having based his diagnosis on the appearances of the tumor, rather than on the positive proof of a microscopical examination following removal. He thought it highly probable that the tumor in the case under discussion, on removal, would be found to contain thyroid tissue.

Dr. Chambers said that with Dr. Freudenthal's permission he had swept his finger over the tumor and it had gone over the globular mass in a way which suggested a cyst; and the character of the covering of the mucous membrane is very similar to that of the tongue, so that he did not understand the diagnosis of lupus. It seemed, he thought, that a hypodermatic needle stuck into the mass would help clear up the diagnosis.

Dr. Chappell said that he, like Dr. Chambers, was surprised that Dr. Freudenthal should make a diagnosis of lupus. The tumor was symmetrical and very tense, and had the appearance of a tumor which he saw some years ago, in which the contents were of a gelatinous nature. A needle, however, would not demonstrate the contents of the tumor, and before operating it would be well to put in a small knife and investigate. It is either a cystic tumor with gelatinous contents, or a thyroid tumor, as had been suggested, though he leaned to the belief that it was cystic.

Dr. Danziger said that he had the opportunity to observe the patient for a year and a half at the Montefiore Home Sanitarium. Dr. Brooks had made a microscopical examination of a piece of the growth and reported it to be an angiolymphoma. He suspected that only a superficial part had been removed, showing the normal histological condition of the part involved. He has palpated the tumor and found it rather solid, hemispherical with a broad base. He

does not believe that the contents are fluid. The character and the size of the tumor have not changed in the last year. He is inclined to regard the tumor as an accessory thyroid gland. The normal thyroid can be felt in its normal position.

DR. CORWIN said that he has now under observation a patient with a large cyst of the tongue located behind the circumvallate papillae, which he regards as a thyroid cyst. It might be interesting to know that it had a partially fluid content. When a hypodermatic needle was introduced, a considerable quantity of fluid was removed and a firm base was left. In other respects, it corresponds to the description of a thyroid cyst given by Dr. Smyth. In association with this tumor there was a globular tumor projecting from the thyro-hyoid region of the neck, three-quarters of an inch in diameter. This was removed and the pathologist said there was no difficulty in deciding that it was an accessory thyroid gland. Both tumors were *median* in their implantation.

DR. FREUDENTHAL said that the question asked by Dr. Smyth had been answered by Dr. Danziger. The tumor, however, did not seem to him to be a cyst, for he had palpated the mass and it had not suggested that idea to him. He had also taken out quite a piece, and if it had been cystic the contents would have come out, for he went quite deep.

Case of Ulcerative Pharynx for Diagnosis. By J. LESHURE, M.D.

Boy, ten years of age. Previous history negative except for a mild attack of diphtheria at the age of three. Both parents are healthy, and he has three sisters, one older and two younger than he, all of whom are well. Fourteen months ago he had some obstruction to nasal breathing, which appeared simultaneously with a cough. This was said to be due to adenoids, and he was operated upon two months later in a hospital on Long Island. For a week after the operation his breathing seemed better, when an abscess formed in his throat. This was not opened, but ruptured spontaneously a month later, and continued to discharge for another month. Although his condition improved somewhat during the summer, his throat never healed. For the past four months he has lost considerable flesh and has marked pain during the act of swallowing.

Physical examination.—Chest and abdomen negative. Nose and tonsils appear normal. The cervical lymph nodes are enlarged. A laryngeal examination could not be made. The soft palate contains scar tissue, evidently the result of a healed ulceration. A large

deep ulcer extends from the left lateral wall of the pharynx beyond the median line and upward into the nasopharynx. Its edges are somewhat raised and its base is covered with a grayish slough, secreting a tenacious muco-pus. This secretion was examined microscopically, but no tubercle bacilli were found.

As the patient has only been under observation three days, there has not yet been opportunity to try any of the therapeutic tests, and the case is presented for diagnosis and for comparison with a similar case:—This patient was also a boy of ten years who had been operated upon some six months previously for adenoids. The boy's throat had not healed, and examination showed an ulcer in the naso-pharynx resembling that in the patient just presented. In this case the lungs were the seat of a tuberculous process, and tubercle bacilli were found in the sputum. These two cases lead to the suspicion that the cause of the nasal obstruction may have been retro-pharyngeal abscess instead of adenoids, and that in operating the anterior wall of the abscess was stripped away from its posterior bony base. Healing would then take place by granulation, and infection might readily ensue. It would seem, from the fact that healthy children were born to the parents before and after this child's birth, that hereditary syphilis could be excluded in the case presented. The diagnosis then would rest between tuberculosis and a simple ulceration.

DR. VOISLAWSKY said that an expression of opinion in regard to this case would be much appreciated. It was a most interesting case and had put them all in a most peculiar position, for no one had been able to make a diagnosis. He thought it was specific.

DR. NEWCOMB thought that it was of a syphilitic nature, and suggested vigorous antisyphilitic treatment.

DR. WILSON said that Dr. Newcomb had expressed himself as being in favor of strong antisyphilitic treatment. If by this iodide of potash was meant, he for one would object to that treatment, for if the condition is of a tubercular nature, large doses of potash are destructive to the lungs, and tubercular patients go down rapidly under large doses of iodide of potash. He would first satisfy himself whether or not tuberculosis existed by using some of the tuberculin tests. After excluding tuberculosis he would then use the iodides.

Case of Hyperkeratosis Linguae (Black Hairy Tongue). By H. ARROWSMITH, M. D.

(To be published in full in a subsequent issue of THE LARYNGOSCOPE.)

PRESENTATION OF PAPERS.

Vincent's Angina: Report of Three Cases. By H. ARROWSMITH, M. D.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

DISCUSSION.

DR. EMIL MAYER said that he had been much interested in Dr. Arrowsmith's paper, for it presented an entirely new view of the ravages which Vincent's angina may produce. From the many recorded cases we are accustomed to look upon this affection as a very mild condition. He could recall the case he had presented before the Section, for the first time in this country, and the patient's condition was almost insignificant.

In the first case presented by the reader, the ravages of the disease were more severe than in the other two, and there was a large amount of scar tissue afterward. That led him to question whether or not there may have been some underlying condition of the patient's general health, which might have had something to do with the condition. The picture of the condition of the throat was exactly the picture of lupus of the pharynx, which was presented by Dr. Asch before the American Laryngological Association. Dr. Mayer said that he had had the pleasure of watching that case for eighteen years before the patient developed an eventual tuberculosis. Comparatively few cases present anything like the severe form represented in Dr. Arrowsmith's first case

DR. HURD said that most of the cases which he had seen were mistaken for some form of syphilis. One case had been referred to him, and after a week's treatment the tonsils cleared up. In this instance the boy was very anxious to go back to school and to have his tonsils removed, and at the end of two weeks he took them out. Following this there was no immunity. The bacillus and spirillum of Vincent were found in abundance in the false membrane on the tonsil wound, and he had a very bad throat indeed, for a week. It is not well to operate on these cases until some time after the attack. He had another case this winter, in which the patient, a young man, had his throat treated for quinsy, and the tonsils incised. When he came to Dr. Hurd the lesions were all over the throat and on both surfaces of the tongue, on both tonsils, and on the lingual tonsil. It cleared up in ten days, after a strong application of nitrate of silver twelve percent. It is very difficult to find the bacilli or spirillum after application of strong antiseptic. He himself usually employs a strong solution of silver or trichloracetic acid.

Bruce (*Lancet*, July, 1904), has reported some ten cases with two deaths from pneumonia. Later he reported another case, with a third death from pneumonia. He also put in a tracheotomy tube, in one case, and the infection ran up the tube, and there was gangrene of the skin; the man died. Here are three deaths reported by one man.

Dr. Hurd said that he had read a paper before the New York Polyclinical Society, and two other cases were reported in which Vincent's angina had been established by smears. Both cases died within a very short time.

DR. NEWCOMB said that the writer of the paper had used the expression "ulcero-membranous angina" as a synonym for Vincent's angina. Four years ago he had spent some time at the clinic in Bordeaux, France, conducted by Prof. Moure, who introduced the term ulcero-membranous angina into medicine, and he had inquired if this angina was the same thing as Vincent's angina, but they seemed to think it a very different affair. Dr. Newcomb said that he had looked this subject up when he came back, and found that all clinicians did not agree that the terms should be used synonymously.

DR. ARROWSMITH, replying to Dr. Mayer's query about the possibility of other conditions underlying the cases reported, said that he did not think there was anything of the kind. The patient weighed 280 pounds, seemed in very good condition, and had no other trouble except the superabundance of flesh. The local condition is absolutely well, except that there is definite evidence of a destruction of tissue. The scar is different from anything that he has seen. It is perfectly flexible, and does not seem to have the same tendency to contract that most scar tissue has.

If he had used the term "ulcero-membranous" angina incorrectly, he asked the pardon of Drs. Moure and Vincent.

Tonsillectomy; A Simple Operation. By SIDNEY YANKAUER, M.D.

(*Published in full in this issue of* THE LARYNGOSCOPE.)

PRESENTATION OF INSTRUMENTS.

Demonstration of Three New Instruments for Tonsillectomy. By LEE MAIDMENT HURD, M. D.

DR. HURD showed first a modification of Moseley's snare and explained the difference between the two and described its use.

Most of the tonsils that are enucleated are of the so-called submerged type. He then showed an elevator or dissector which he

has been using for eight or nine months. The retractor pulls the anterior pillar of the plica outside. The tenaculum is something rather new. Instead of working like an artery clamp and pinching up a little bit, it works on an axis and encompasses the tonsil as it goes over, and locks and holds it. After grasping the tonsil with this, he pulls it toward the median line and forward, putting it on the stretch, and at the junction of the tonsil and anterior pillar he makes a division sweeping motion downward, and rotates the instrument, and one can see the capsule of the tonsil appear, then go around and come up through the attachment of the mucous membrane with the tonsil in the rear. He breaks it free, and with two movements he has all the anterior pillar free, and the upper half of the posterior pillar, and it bleeds very little. He then puts on the snare.

A hemostat. He has often been troubled after one tonsil is out, and thought that if he had something simple which could be put in the cavity where the tonsil had been removed, so as to control the bleeding, the other tonsil could be operated upon with more ease. This hemostat is simply slipped in and the hemorrhage is easily controlled. It is light and does not interfere very much with the comfort of the patient. It is easy enough to enucleate the tonsil. The snare loop seems to go through the so-called capsule of the tonsil better than any other instrument; the dull cutting edge of the wire goes right through the capsule between the tonsil and the fascia of the superior constrictor muscle, and if the pillars of the mucous membrane covering the tonsil are carefully separated there is an inverted V-shaped slit which takes a long time to heal—six or seven weeks afterward; there will be a white stellate scar. There is no lymphoid tissue left, and the level of the free border of the velum is slightly lower than before, but there is no difference in the voice or in the function of the throat. If the posterior pillar is injured, there will be a deformity of the throat, but that will not interfere with the comfort of the patient. It can, however, be seen on inspection.

New Instruments for Tonsillectomy. Presented by E. V. HUBBARD, M. D.

DR. HUBBARD said that he was almost ashamed to show another tonsil instrument, but that he had been looking for a hook which would lift the tonsil satisfactorily before the cold wire snare is applied. The reason they do not work is because of the crushing of the tonsils. He therefore had a harpoon made, which he has used

in 150 cases with much satisfaction to himself and the approval of his colleagues. It is made at a simple angle, and on the end of the hook there is a sharp point with two lateral flanges that slide against it. It will explain itself. The flanges open after the harpoon is inserted and are self-retaining.

It is best to put the harpoon in at the superior angle and push it down. As it drops in, the point of the harpoon goes to the center of the throat and becomes visible, for it is introduced with that in mind, and there is no danger of its going astray, otherwise there might be trouble in view of the fact that it might be introduced into the posterior pillar. Dr. Coffin said that it was a good instrument, but asked what could be done if it got into the wrong place—how could it be gotten out? Supposing it has gone through and has caught the posterior pillar, how can it be taken out? By simply turning the screw the parts are separated, an artery clamp is put on, and the harpoon-end is drawn through and out. Although he had used the instrument 150 times he has never, however, had occasion to use the screw, but it is there if needed. In addition, it had the advantages that Dr. Yankauer claimed for one of his instruments—there are not two rings, like a scissors handle, and if it is once introduced with a good grip it is self-retaining, and the snare can be slipped over it.

Dr. Moseley's snare is known by all, but the necessity for modification was forced upon him by injuring his finger several times. There is a stylet as in the old Sajous nose snare. It is very easy to thread and unthread, you don't stick your finger, it is quickly done. There are two holes in the end of the stylet, and a very short wire, 4 inches long, No. 9 or 10 steel piano wire, and that is an item if one is doing much of this work. The No. 9 wire is better for this purpose. It can be used again and again. The usual objection is that after the wire has once been drawn down on itself you must have another piece. In this snare the wire loop will slide back out of the canula, as many times as you please, and you are ready to start again, which is a saving of time.

He has found no need for a flat point, and with the harpoon he has found that as a rule he does not need to separate the pillars and go through a large amount of dissection. Lifting the tonsil from its bed with the harpoon he coaxes the wire around its base, drawing it forward against the anterior pillar, and in many cases can bite it off without any dissection whatever. Where that is not possible, he has found a pair of scissors with a sharp curve on the flat very useful, and preferable to tonsil knives. They can be used

as a blunt separator. In these 150 cases, where he has not succeeded with the harpoon and snare, he has used the scissors in addition. Once the harpoon is in place, one's troubles are over.

DISCUSSION OF TONSILLECTOMY.

DR. MAYER said that he had witnessed all of Dr. Yankauer's operations. The question before us is not the question as to whether tonsillectomy or tonsillotomy should be employed, but is it a simple operation or may it be made so? The simplicity of this operation lies in the fact that but four instruments are required, that the operation itself may be performed in a comparatively short period of time, and that in persons with any reasonable amount of nerve it may be done without anesthesia and be practically painless.

He told of the case of a young woman at the hospital upon whom he had demonstrated this method of local anesthesia. This young woman had other conditions which required treatment, and incidentally Dr. Mayer was asked to look after her nose and throat, and he suggested that in view of the fact that she had had repeated attacks of quinsy it would be well to have her tonsils removed. She was injected according to Dr. Yankauer's method at the entrance of the nerve, and the tonsil was separated as he had described, and to his surprise, fully a dram of pus was evacuated at the moment the snare wire encircled the tonsil. No one would have made a diagnosis of pus in that tonsil. The important feature, however, was that the young woman declared that she had had absolutely no pain except a sensation similar to that of pulling on her hair. When this patient was first told that her tonsil should be removed, she so dreaded the operation that she was left to choose whether she would have general anesthesia or not, though local anesthesia was advised.

DR. MAYER said he had always considered that tonsillotomy in an adult was a thing to be considered two or three times before it was attempted. He has seen some very severe hemorrhages follow as late as eight days afterward, but the tonsillectomies that have been done lately have made him less fearful of the danger of bleeding than the method by removal with the tonsillotome. A number of cases have come within his observation in a very short time, and he feels more confidence since this method has been used.

Every Wednesday afternoon at Mount Sinai Hospital the operation is performed on the children sent in from an asylum for orphans. The children are anesthetized and the tonsillectomy is per-

formed, the tonsils being removed thoroughly with the capsules, and in no instance in 54 cases has there been any reaction—no bleeding or any special difficulty of any kind, and in two days the children are all well.

The method described by Dr. Yankauer is well worthy of trial, and so far as the question of anesthesia is concerned it is especially worthy of trial to determine whether all have the same effects from local anesthesia. If so, it will certainly minimize the severity of operations in adults.

DR. ABRAHAM said that Dr. Yankauer deserved to be congratulated upon his excellent paper. Several minor points of importance had been brought forward. First, the use of adrenalin. He himself had discarded this in his private practice for a year or more. Dr. Yankauer had also spoken about the injection of cocaine. While he himself had never had any experience with injecting it at the exit of the nerve, yet he has injected it with a canula in the region where he makes the simple incision for peritonsillar abscess, above and externally to the capsule. This, together with rubbing with the crystals of cocaine, has given him sufficient anesthesia to perform the operation. He agreed with Dr. Mayer that in adults only one tonsil should be operated on at a time.

Two and a half years ago he reported a case of enucleation of the tonsil, which was the first that he ever performed. In these cases which Dr. Myles so graphically described, the removal of the first is very simple, but the submerged tonsils would be very difficult to remove with a snare. With such, enucleation offers the best method of removal. He performed this operation with the ordinary scissors and by dull dissection or enucleation with his finger, and had had no trouble in removing the capsule from its base. The patient made an uneventful recovery.

Dr. Abraham congratulated Dr. Hubbard on substituting a stylet for the wire instead of the wire loop.

DR. CARTER, referring to Dr. Hubbard's modification of Moseley's snare, said that it might possibly be due to a defect in the construction of the instrument with which he had had his experience, probably an improper proportion between the size of the stylet and the canula. For the two cases in which he had used the instrument were very large hard, fibrous tonsils, and on both occasions the wire pulled out, and there was some trouble in getting the tonsil out afterward. In all probability the modified instrument is better, but the canula with flattened tip should be adopted.

DR. THURBER, referring to the remarks made by Dr. Carter, said that he judged the trouble lay more in the selection of the size of

the wire than in any defect in the instrument. He prefers Dr. Peter's snare to Dr. Moseley's. He has, however, had more soreness after using the snare than in simply using a tenaculum and two pairs of scissors; one curved on the flat for the right tonsil and the other curved on the edge for the left tonsil, the tenaculum being held in the left hand for both sides. When the tonsil hangs well down on the tongue, he cuts it off instead of snaring it. He has had so much soreness and sloughing after using the snare that he has stopped using it for most cases.

DR. VOISLAWSKY said that on account of the soreness due to the use of a snare, he had confined himself to a tenaculum like that used by the gynecologists, and he also uses a dull Mackenzie tonsillotome after freeing the tonsil.

DR. CHAMBERS protested against the employment of Dr. Hubbard's harpoon. He did not think it was right to go into that region with so deadly an instrument that would be fine for securing a shark. He congratulated the doctor on having got away with one hundred and fifty tonsils with the instrument, but with the one hundred and fifty-first he might wish to let go of it quickly—there might be heart failure, etc.,—and he would want to get away without tearing the tonsil, or perhaps a large branch of the carotid artery. He himself would never dare to use the instrument.

DR. HURD said that Dr. Yankauer had stated that the bottom of the crypt was immediately in relation with the tonsillar capsule. This is not so. There is always a layer of epithelium between capsule and crypt.

The soreness depends upon two things: First, the injury of the mucous membrane surrounding the tonsil. If it can be gotten out without injuring that, there will be very little soreness. One should also avoid injury to the plica, if possible. Second, the condition of the patient's mouth. If the buccal cavity is harboring many micro-organisms, the throat will be sorer than with a clean mouth.

DR. YANKAUER, in closing the discussion on his paper, said that the points brought out by Dr. Myles and the Chairman's objection to cutting the plica might be answered at the same time. The mucous membrane of the lower pharyngeal wall covers the lower pole of the tonsil, so that its free border becomes visible on the free surface of the organ; but the capsule also curves around the lower pole of the tonsil, and extends under the mucous membrane of the plica to its free border, so that the plica contains both mucous membrane and capsule. Anteriorly, both of these layers are attached to the posterior surface of the anterior pillar, to the palato-

glossus muscle. Hence this structure holds the tonsil up, so that when the tonsil hypertrophies, it must grow into the velum of the palate, forming the velar lobe. When the plica is cut away from its attachment to the anterior pillar the tonsil becomes movable, and can be pulled down into the throat, so as to bring the velar lobe below the arch formed by the two pillars.

It is true that the operation is painful when performed without anesthesia in young children. It has, however, always been common practice to perform ordinary tonsillotomy in this way, and inasmuch as the technic, as described, enables us to perform this operation in very little more time than ordinary tonsillotomy, the shock is not much more. If we determine the amount of pain by the shock produced, it is certainly justifiable, as the children are able to be about as soon as the bleeding stops, and apparently without any ill effects. As regards the anesthesia by the regional method, it seems to give as good results as any other method of injection, as all the steps of the operation are painless except the use of the snare. The pain here produced seems to me to be due to a spasm of the superior constrictor muscle caused by direct mechanical irritation of its muscle fibers.

DR. HUBBARD said, in closing the discussion, that something had been said in regard to heart failure. .It must not be the surgeon who has the heart failure. In the first place, he had specifically mentioned that the instrument upon which his modification was based was made for sharks, and that means that it must be used, as he had said, with the greatest care by experts. Used as he had described, it is a physical and mechanical impossibility to drive the instrument elsewhere than where it can be seen, and that is what is required.

DR. CHAMBERS said that the protest he had made was not that it might do damage in placing it, but that when sent home it was immovable.

DR. HUBBARD said that one does not want to get it out.

DR. CHAMBERS said that it could not be gotten out quickly enough in case of need.

DR. HUBBARD said that there would be no need for haste, the patient was asleep. He never uses the instrument excepting under general anesthesia. Perhaps he had not sufficiently emphasized the point that the tonsil must be lifted, and in that way one does not have to use any counter pressure—it is rather a pull than a push.

In regard to the unsatisfactoriness of the snare, it might have been that the canula did not accurately fit the stylet; it may have been either too large or too small, or the wire was not the right

size, or perhaps a sufficient amount of wire was not bent through the eyes in the stylet; there should be an allowance of a half or three-quarters of an inch to permit of some slight slipping. He has taken out many fibrous tonsils by going through slowly and has never had any trouble. The instrument at the hospital is unsatisfactory, for the two parts do not approximate as they should.

Another point is that many tonsils can be cut off without using the screw at all. Often he uses it like a guillotine, with a reasonable degree of speed, without having recourse to the screw.

PRESENTATION OF SPECIMENS.

Specimen of Lung Showing Rubber Tubing in Right Bronchus for Four Months Prior to Death. By A. VOISLAWSKY, M. D.

September 11, 1908. Sailors' Snug Harbor. D. K., sailor, aged 80. Family history negative; venereal history negative. Has smoked and drunk heavily. Has been hoarse for past five years. For past year patient has gradually lost his voice until he could not talk above a whisper. Outside of gradual loss of voice and hoarseness, patient has suffered no other discomfort. In May, 1907, went to Vanderbilt Clinic and was treated for a month, but obtained no relief. In August, 1907, he went to Manhattan Eye and Ear Hospital. Here his throat was examined and a growth was found in the larynx involving the true and false vocal cords on the left side. Examinations made and section removed by Dr. A. P. Voislawsky for microscopic examination. Section examined by Dr. Ewing and found to be carcinomatous. After September 1, 1907, the growth spread rapidly and his dyspnoea and distress became marked. On September 11, 1907, the patient entered the hospital at Snug Harbor.

October 1st. Patient has lost flesh and strength. Dyspnoea very marked. Cannot lie down at all. Given a little morphine to relieve spasm of throat and aid breathing.

October 16. Patient cannot get air enough to breathe and is becoming cyanotic. In great distress, partly relieved by oxygen. Taken to operating-room and intubated, but tube was not retained on account of post-laryngeal wall being eaten away by growth. A low tracheotomy was then done, silver tube placed in trachea, and patient has since had no trouble in breathing.

November 22. Growth increasing in size. Tube had to be removed and a longer one inserted.

December 4. Eats and sleeps well, but when eating and drinking, particles of food come through the tube. Patient forced to live on semi-liquid diet, mostly custards.

January 16, 1908. Patient has more or less trouble and pain with his silver tube. This date a rubber drainage tube with safety-pin inserted was used in place of tube, and patient is more comfortable.

February 1. X-rays started on throat—two exposures a week.

February 25. Rays discontinued, as growth has grown more rapidly, now involving the cervical structures. Superficial tissues also very red, and in danger of a burn if rays were continued.

April 1st. Rubber tube used continuously as patient cannot stand silver tube owing to size and position of growth.

April 25. Patient fairly comfortable. Removes tube and cleanses mucus from throat himself. Occasionally has slight hemorrhage from the granulations around the tube.

May 16. While poking at tube this morning, patient removed the safety-pin, and the tube, being covered with mucus, slipped, and was inspired and drawn into patient's lung. Oxygen was administered and the tube was sought for with curved forceps, but could not be reached. Tracheal wound was enlarged, but tube could not be felt with finger nor found with curved forceps. Another tube was inserted and oxygen was continued.

May 18. Severe hemorrhage from growth,—lasted about an hour.

May 30. Occasional hemorrhages, leaving patient very weak. Took radiograph of chest, but tube could not be located. Patient up and about the ward, fairly comfortable.

July 6. Patient comfortable, but very weak. Needs constant stimulation. Ankles oedematous.

August 10. Patient so weak that he can hardly stand. Has great difficulty in raising discharges from lungs.

September 1st. Still sits in chair, but is unable to walk. Discharges from tube becoming very offensive.

September 8. Patient is unable to rise from bed and is only semi-conscious at times.

September 14, 1908. Died at 12:15 p. m.

Autopsy by Dr. Welsh, Bellevue Hospital:—Heart. Advanced stage of myocarditis. Coronary arteries calcareous. Pharynx, larynx, and back of tongue one mass of new growth and necrotic tissue. The trachea and bronchi were opened behind, and in the right bronchus was found the rubber tube. Lung showed signs of slight hypostatic congestion, but no pneumonia. Tube was patent and had been used to convey air to the right lung.

Microscopic examination showed that the growth in larynx, pharynx, etc., consisted of epithelioma with no metastases. Specimen in Academy collection.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, March 9, 1909.

HENRY GRADLE, M. D., CHAIRMAN.

PRESENTATION OF CASES.

DR. HARRY KAHN presented a case of foreign body in the maxillary sinus. A man, over fifty years of age, luetic for thirty years, nine years ago developed pains in the legs and other tabetic symptoms. Seven years ago vision began to fail, and a diagnosis of tabes was made. Vision rapidly became worse, and the man is now totally blind. About four years ago he placed himself under the Cooper treatment and was injected many times. He became salivated, and lost most of his teeth, except the first and second upper molars on the left side. Then he had a plate made, but, as his gums shrank considerably, the plate would not remain in place. He then devised the expedient of sticking a toothpick beside the first molar to act as a wedge. This tooth loosened so much that extraction was resorted to. The socket did not heal, and on examination pus was found exuding. Dr. Kahn punctured the maxillary sinus, and found it to contain a considerable amount of pus. At the second puncture he discovered an anesthetic area on the gums. Finally, the sinus was curetted and a piece of toothpick, about three-fourths of an inch in length, was removed. Evidently, this had been the cause of the trouble, because recovery followed immediately.

DR. WILLIAM L. BALLENGER, in discussion, stated that some years ago he had seen a case of suppuration of the antrum which had previously been treated by a local specialist, who introduced a drainage tube into the antrum. After a time the tube disappeared, and it was presumed to be lost. The suppuration continued, however, with increasing severity. Some months later the patient had a violent fit of sneezing, during which the drainage tube was ejected from the nose. The suppuration then abated, and a cure was gradually effected.

DR. D'ORSAY HECHT first saw the patient in January, 1908, and said it required not a very thorough examination to pronounce the case one of frank tabes, presenting, however, unusually interesting

features, two of which he desired particularly to emphasize. It was to be observed that the patient walked well, while, on the other hand, it was to be noted that he was blind. Curiously enough, he walked well because of the blindness. Dr. Hecht said that the blindness developed early and belonged to that category of tabes cases known to neurologists and ophthalmologists as the amaurotic type, in which the motor symptoms were known to remain in check, held in abeyance. So constantly true was this clinical fact, that Dr. Hecht could conscientiously follow a neurologic dictum of years' standing, namely, to give patients with rapidly failing vision the assurance that they need have little or no concern about an impairment in their gait. The patient who could not see would walk well; the patients who could not walk well need have no fear of losing their eyesight.

The second feature, Dr. Hecht said, had to do with sensation. He stated that the sensory disturbances in tabes were many in kind and varied in location, the analgesias affecting chiefly the lower extremities, whereas the anesthesias appeared more often in a zonal distribution on the trunk, corresponding to cord segmental distribution. He would add that testicular and ulnar analgesia, together with delayed sensory impressions, were also present in the patient presented, but only in a slight degree. He desired to call attention to one of the rarer forms of sensory involvement affecting the fifth cranial nerve, which, as it occurred in this case, proved most interesting. The trigeminus was anesthetic and hypalgesic both in its ophthalmic and superior maxillary divisions, in support of which Dr. Hecht passed for inspection several sensory charts with outlines of sensory disturbance in the extent mentioned. It was of further interest, in passing, to note that the patient was unable to recognize the position of a bolus of food in the mouth, readily explained by the fact that the fifth nerve supplies, in addition to the entire integument of the face, the mucous membrane of the mouth, the nose and antrum of Highmore. The insensitiveness to pain enabled the puncture and instrumentation of the antrum without the least discomfort to the patient. Although not demonstrable now, there had at one time in the earlier course of the disease been present an hallucination of smell, in other words, a parosmia.

Dr. Henry Gradle showed specimens of a tonsil injected with bismuth paste, and then serially sectioned to demonstrate a communication of the various crypts of the tonsil with one another.

Dr. Joseph C. Beck demonstrated the method of injection of the tonsil with bismuth paste, a method he has employed in several cases of acute inflammations. Although the patients have returned subsequently, with attacks of tonsillitis, they were not so severe, either locally or constitutionally.

Dr. J. Holinger reported the case of a man who became ill three months ago, with symptoms of vomiting, dizziness, and staggering gait. The patient's condition has been apparently improved about 75 percent by the inflation of the middle ear with air. Mercury and potassium iodide are also being administered, although there are no manifestations of lues and the patient denies infection. The general diagnosis is lues of the brain and spinal cord. He has analgestic zones on the legs and face. The tuning-fork tests show simple nerve deafness. He hears whispered voice in both ears about five meters. The Rinne test is normal. The Weber-Schwabach for small a is positive, and for capital A is negative. The upper tone limits are lower than normal. He hears sixteen vibrations quite well in both ears. Injecting a cold solution in the ear produces a normal reaction. The nystagmus is especially bad when looking toward the side not injected. The reflexes are diminished.

Dr. George E. Shambaugh, in discussion, stated that although one frequently hears of cases of aural vertigo caused by middle ear disease, a good explanation has never been made as to how a continued increase in labyrinthine pressure could cause the vertigo. If this patient is suffering from a neuritis of the acoustic nerve, the symptoms could be explained very readily. If the ear trouble has come on only several months ago, and is of the internal ear type as the tests show, it is probably due to a neuritis of the acoustic nerve, and the continuation of the irritation of the vestibular portion of the nerve is the cause of the vertigo.

Dr. D'Orsay Hecht said that since neurologic comment had been invited by Dr. Holinger, he felt disposed to differ in regard to the inflation test just applied to show an improvement in the patient's ataxia. He thought no inferences should be drawn from this demonstration. As concerned the diagnosis of cerebro-spinal lues in this case, he could not reconcile himself to such a conclusion, based upon the symptoms referred to. Dr. Holinger had not remarked about the pupillary condition, nor those of the reflexes, and he did not think that a diagnosis was tenable when based

upon "poor" reflexes, and such subjective symptoms as headache, vomiting, and a questionable degree of static ataxia, as shown by the Romberg sign. He thought that these symptoms, vague as they were, might indicate any one of a number of cerebro-spinal, cerebral or meningeal conditions. He added that he had frequently noted marked improvement in vertigo of the aural type as the result of inflation, and was rather inclined to believe that this test was of significance in the diagnosis of Meniere's disease. He was not prepared to venture a neurologic diagnosis, as he had not examined the patient.

Dr. Hecht said, in answer to Dr. Shambaugh's inquiry concerning the physiological explanation of the retardation of the ataxia in the presence of amaurosis, that he had nothing adequately scientific to offer, but it was a well-known fact that visual concentration upon motor effort increased motor incoordination. He added that a woman with tabes will never present as much ataxia of gait as will a man, for the reason that she cannot see herself walk because of the intervening drapery in the form of her skirt.

In the Fraenkel exercise treatment of the ataxia of tabes, an attempt at re-education is made by exacting precise manoeuvres at a better coordination without the aid of the visual apparatus. This is as much as Dr. Hecht could venture to explain.

Dr. Holinger stated that this was the first day that the man had retained three meals. The day that an inflation is made he does not vomit at all, but the next day the reaction is pronounced. For about eight days he has been getting hypodermic injections of mercury and potassium iodide, and all of the symptoms have improved considerably. The vestibular apparatus certainly is not paralyzed, because there exists a pronounced nystagmus.

PRESENTATION OF PATIENTS.

Dr. Joseph C. Beck presented a lady whose cervical glands were removed some time ago, and who now has a fistula. There is a condition in the mouth that is peculiar. A mass occupies the site of the posterior pillar of the fauces, somewhat simulating a tonsil behind the posterior pillar, and the space between anterior and posterior pillars is obliterated. The question is whether this mass to which the fistula leads is tuberculous in nature.

Dr. O. J. Stein suggested that this mass might be a cold tuberculous abscess, particularly inasmuch as it had existed for about three months.

PRESENTATION OF PAPERS.

Early Immunization, the Essential Function of the Tonsil. By ROBERT H. GOOD, M. D.

(To be published in full in subsequent issues of THE LARYNGOSCOPE.)

DR. GOOD discussed the hypothesis that the tonsillar crypts acted as test tubes for the reception and cultivation of bacteria of the different diseases which affect the human organism, and that a gradual process of immunization results, his conclusions being that the time when the individual is in greatest need of protection against the various infectious diseases is during the first few years of life, and that it is during this period that the tonsil performs its chief physiological function. It is only occasionally in later life that the tonsil has this function to perform. He concludes that in children under two or three years of age it is unwise to remove the tonsil completely. It is only the markedly diseased tonsil that should be enucleated. He further concludes that when the tonsil once becomes diseased, its function is so altered that it is possible for it to become a portal for systemic infection.

DR. C. M. ROBERTSON questioned the statement that the tonsil has a function. He is inclined to believe that it has no function whatsoever, certainly not at birth, when it is completely covered over by the plica tonsillaris. Shortly after the second year this fold disappears, and the function of the tonsil, if such exists, may commence. The tonsil develops up to the fifth or sixth year, and then rapidly atrophies, so that at the age of puberty it has practically disappeared. Therefore, if the tonsil has any function at all, it is between the ages of two and ten years; after that it is a pathologic organ.

As for the statements made regarding the glands and ducts, that is not new, although the opening of the duct into the crypt is a new discovery, if really true. The duct is situated down at the bottom of the crypt in the capsule and passes up into the trabeculae. The mucus expelled from the crypt is slight in quantity, just sufficient to keep the surfaces of the crypt lubricated.

As to the phagocytosis: The lymphocyte coming from the tonsil, not going into it, is not a phagocyte, and besides, the pouring out of opsonins is necessary before the lymphocytes can become phagocytic. The location of the tonsil is such that in respiration it is closed off from the respiratory tract. The posterior pillar of the fauces is a broad muscle, five or six times as large as the palatoglossus muscle, so that the tonsil is pressed up against the tongue,

and excluded from the respiratory tract. Dr. Robertson considers Fox's theories all wrong; at any rate, they have never been proved to be correct. As a digestive organ, the tonsil has no function at all. That has been shown repeatedly by experiments; nor has the tonsil any bactericidal action.

As regards the formation of anti-bodies, such an action has been suggested, but has not been proved. Vaccination in tonsillitis would prove that quite readily.

DR. OTTO T. FREER: Dr. Good's discourse leaves the impression that he has reasoned out for himself a theory of the function of the tonsils based upon a literary review and deductions therefrom, rather than upon the clinical and laboratory research which his assertions demand as a backing, if they are to be taken seriously. His paper consists mainly of unproven and to a large extent unprovable hypotheses, and is not, it seems to me, a record of demonstrated facts.

For example, the mucous glands in the fibrous envelope of the tonsil, called by Dr. Good paratonsillar glands, are declared by him to be the seat of origin of peritonsillar abscess. To make this more than mere dogmatic assertion, Dr. Good should have furnished microscopic specimens showing in these glands the beginnings of a peritonsillar abscess, which would appear as dense round-celled inflammatory infiltration associated with necrosis of the glandular epithelium.

In another part of his paper Dr. Good refers to the crypts of the healthy tonsil as the analogues of test tubes containing cultures of bacteria, and makes the statement that bacterial agglomeration in the crypts has an immunizing effect on the body in the course of time. Had he shown histologically such massed gatherings of micro-organisms in the crypts, he would at least have had some support for his hypothesis. As it is, his description is contradicted by everyday experience, which shows the crypts of healthy parts of excised tonsils to be empty of anything but clear transparent mucus, which has no resemblance to the opaque bacterial cultures familiar to all the test tubes. To be sure, cultures of bacteria contained in fibrinous exudate clinging to the walls of the crypts are seen in follicular tonsillitis. This is, however, an inflammatory and not a physiological condition.

DR. HARRY KAHN said that the essential facts of Dr. Good's paper were read by Dr. Orendorf in Indiana, in 1907, and in

that paper he positively states that his conclusions were based on the examination of tonsils excised by Dr. Good. Therefore, it is impossible to arrive at an estimation of the true value of the theories advanced by Dr. Good with regard to the function of these tonsils. He considered it an assumption on Dr. Good's part to formulate a theory based on mere supposition and not on experimental facts. The entire paper is a theory without any foundation.

Dr. Good, in closing, said it was unreasonable to suppose that any organ having a lymph current draining into it, and having the function of throwing off leucocytes into the crypts, having pockets and mucus draining into these pockets, was without function. Instead of there being a small amount of mucus in these crypts, there is a considerable amount. And that the plica tonsillaris, or triangularis, covers up the entire tonsil at birth is not correct. He described a tonsil a month ago, in which the upper crypts were wide open and easily admitted a probe. The triangular plica acts as a pocket to catch bacteria and pass them into the crypts. The presence of bacteria in the crypts was demonstrated by Dr. Jonathan Wright. As to Dr. Kahn's statement that the immunizing theory had been derived from the examination of diseased tonsils, this was not true. Dr. Orendorf examined tonsils that he (Good) had removed, but he did not attempt to build any theory on these examinations.

Dr. Arthur R. Elliott discussed some of the questions in connection with the secondary systemic toxic effects from tonsillar disease. In this he dealt chiefly with such questions as anemia, resulting from hypertrophied tonsils and adenoids, rheumatic conditions occasioned not only by acute follicular tonsillitis, but by more or less latent chronic tonsillar infection, etc.

Dr. O. J. Stein thought that Dr. Elliott's extended observations proved that almost every tissue of the body is capable of being affected by tonsillar disease; therefore, it might be said that all tonsils ought to be removed. These observations have been confirmed by many clinicians. He referred to a case of acute tonsillar disease occurring in a woman thirty-five years of age, brought on by exposure, which terminated twenty-four hours later in a swelling of the right wrist. This was followed by swelling of the elbow, and then of the shoulder joint. On the second day the knee joints and both wrists were swollen. There was scarcely any rise

of temperature, no redness, but the swelling was so marked that the patient was incapacitated. There was tenderness, but no pain, except on motion. It was what might be called a case of polyarticular synovitis. It was questioned whether the tonsillar disease had anything to do with the joint affections. After removal of the tonsils the trouble disappeared entirely. Cases that are likely to be overlooked are those in which there is a slight cough and a rise of temperature simulating tuberculosis. Careful examinations must be made in order to discover suppurating tracts in or about the tonsils. Unless repeated examinations are made in these cases, the findings will be negative. Erythema following tonsillar disease is also quite common.

DR. FREER: Dr. Elliott has permitted himself a statement of importance which is founded on insufficient evidence. I refer to his assertion that children are anemic because of tonsillar hypertrophy or other tonsillar diseases, this anemia being removed by ablation of the tonsil. To be of scientific value, such a statement should be backed by blood counts and quantitative hemoglobin tests, and should not be made without a reference to them. From my clinical observation I regard the doctrine, that children with tonsillar hypertrophy are in consequence anemic, as a textbook tradition rather than a proven fact, for these children have seemed to me to have as good a color as those without tonsillar hypertrophy, nor do they present any of the other clinical signs of anemia. To prove or disprove this doctrine, however, exact blood tests are needed both before and after the operation, and I suggest that such a research would prove a most valuable one for some member of this society.

It is unfortunate that medical literature is inflated by so much that is unsupported by clinical and experimental evidence and is mere plausible theory, announced as demonstrated truth. It requires self-denial for the medical writer to mercilessly elide from his writings the many things which he feels to be true, but has not proven to be so, but the narrow path of exact evidence is the only one to follow.

DR. ARTHUR R. ELLIOTT, in closing, commended the scientific spirit displayed by Dr. Freer in requiring proof for every statement made, but time prevented a full discussion of the cases he (Elliott) had presented, although all of his statements were the result of a careful examination in each and every instance. He

merely refrained from presenting a mass of detail that would consume more time than was at his disposal.

Sheet of Directions Given the Patient After a Tonsil Operation, Including the Treatment of Post-Operative Hemorrhage. By EDWIN PYNCHON, M. D.

(To be published in full in subsequent issues of THE LARYNGOSCOPE.)

DR. PYNCHON discussed in detail all the methods that are ordinarily used for checking post-operative tonsillar hemorrhage.

DR. FREER: Dr. Pynchon's paper is a full and therefore valuable compilation of everything that might be tried to check tonsillar hemorrhage. I can think of nothing that Dr. Pynchon has omitted.

I do not agree with him in regard to the frequent gargling and syringing he recommends as after-treatment. I think that such disturbance of the wound, and especially the retching it provokes, would be apt to bring on bleeding, and at a time when the patient is far from help. The mode of operation which I employ, knife excision, causes so little reaction that I have not found after-treatment of any kind needed.

The general measures suggested by Dr. Pynchon for the checking of bleeding seem of especial value, for the most important thing to do in the case of obstinate tonsillar hemorrhage is to lower blood pressure, rather than to fuss with the wound and so displace clots which may be forming in the outlets of the vessels. Therefore, the nauseants, ligation of extremities, upright position and other preventive measures advocated by Dr. Pynchon, and by me in a previous discussion before this society, have my approval.

In regard to the use of tonsil clamps, they are most valuable aids, but apt to be ineffective until the blood pressure is lowered by the bleeding or in other ways.

DR. PYNCHON, in closing, said that there could be no doubt about the improvement in health after the removal of tonsils. He had yet to see a case where this was not true. He suggested that if Dr. Freer would remove tonsils in their entirety he would get the same results. If he removed tonsils by his (Pynchon's) method, the operation would not only be a bloodless one, but no clots would form, and therefore the gargles and the syringing would not wash away any clots and start hemorrhage afresh. On the contrary, he finds it wise to use gargles with as great frequency as the patient can be persuaded to use them.

DR. FREER (replying to closing remarks of Dr. Pynchon): Dr. Pynchon states that if I removed tonsils completely I would see evidences of disappearance of anemia in children after the operation. I think he misunderstood me, for I said that in my experience there were commonly no physical evidences of anemia in the children I had operated upon, either before or after the operation.

Dr. Pynchon, without personal knowledge of my work, insinuates that I do not completely remove tonsils. I think that those who read my recent article on tonsillar excision in the *Journal of the American Medical Association* will be convinced that I leave no vestige of diseased tonsils behind after my tonsillectomies.

Dr. Pynchon praises his method of tonsillar ablation, which is known to be cautery dissection, as offering a bloodless operative field. He does not, however, mention the violent and serious post-operative bleedings which occur at the most unwelcome times, days after his operation, in the form of secondary hemorrhage when the cautery sloughs separate, for a seared wound is a treacherous one in regard to bleeding, the vessels, when opening in tissues inflamed after a burn, failing to close until the patient is nearly exsanguinated. I have personally treated two of Dr. Pynchon's patients for him who had most serious secondary tonsillar hemorrhages. In distinction to this, after my knife excision in adults, since I use adrenalin submucously, I have been able to operate in a bloodless field in most cases, and the adrenalin anemia lasts long enough for the vessels to close, so that post-operative hemorrhage is rare and never severe in my experience. In children I have never seen delayed bleeding from tonsils.

"Morcellement" of the Hypertrophied Faucial Tonsil. EUGENE FELIX. *Monatsschrift f. Ohrenheilkunde*, October, 1905.

Under this title are reported thirty-two cases of adults, or children over ten years of age, in which hypertrophied tonsils were removed by means of the Ruault tonsil punch. Small pieces were removed at one time, several sittings being necessary for each case. There was no hemorrhage or other complication of importance. YANKAUER.

BOOK REVIEWS.

The Labyrinth of Animals, Including Mammals, Birds, Reptiles and Amphibians.

By ALBERT A. GRAY, M. D. (Glasgow), F. R. S. E., Surgeon for Diseases of the Ear to the Victoria Infirmary, Glasgow. Vol. II, 252 pages, 45 plates (actual stereoscopic photographs). Cloth, 4to. Price, 25 sh. net. Publishers, Messrs. J. & A. Churchill, 7 Great Marlborough Street, London.

The present volume, supplementing the one reviewed in THE LARYNGOSCOPE for December, 1907, completes a monumental and unique work. This new volume deals with certain representatives of the Rodentia, Insectivora, Cetacea and Sirenia, Marsupalia, Monotremata, Birds, Reptiles and Amphibians, and closes with condensed tables of measurements of the labyrinth.

Dr. Gray has carried the work to completion in the same painstaking manner in which it was begun, giving the detailed results of his own work, not trusting to traditional views, and stating only what he has good reason for believing. In his conclusions he is equally conservative.

The forty-five stereoscopic photographs included in the volume are of immense importance as supplementing the author's observations, and are so clear, and necessarily so free from the effect of personal bias, as to furnish ocular demonstration of most of the statements made in a way impossible where drawings are used.

All in all, this new and modern work, prepared with modern methods and appliances, and in accordance with present-day conceptions of scientific accuracy, is one of far-reaching importance, not only in its own special field but in the larger domain of science, where it stands as a model of good, honest work.

Special Hospitals: Their Origin, Development, and Relationship to Medical Education; Their Economic Aspects and Relative Freedom from Abuse.

By RICHARD KERSHAW, Secretary of the Central London Throat and Ear Hospital. Pamphlet, 8vo, 84 pages. Publishers, Geo. Pulman & Sons, Ltd., 24-27 Thayer Street, Manchester Square, London, W., 1909.

In this monograph, sufficiently described by its title, the author has brought together much valuable information of a historical nature, as an introduction to a detailed statement concerning private hospitals (in Great Britain).

Lehrbuch der Ohrenheilkunde fur Praktische Aerzte und Studierende. (Text-Book on Otology).

By DR. ADAM POLITZER, O. Oe. Professor der Ohrenheilkunde an der Wiener Universitat, K. K. Hofrat, Em. Vorstand der K. K. Universitatsklinik fur Ohrenkranke im Allg. Krankenhause in Wien. Fifth edition, enlarged and completely revised. Price, 12 marks. Octavo, 693 pages, with 337 illustrations in the text. Publisher, Ferdinand Enke, Stuttgart, 1908.

It is a satisfaction to know that the work of this master in otology, the classic volume now in its fifth thoroughly revised edition, has been brought up to date and to include the recent significant advancements which have been made in otology. As many of the recent valuable observations in the

physiology and pathology of the labyrinth have first been made by the Viennese physicians, it is natural that the most complete exposition of this valuable data be found in such a volume.

The chapter on cerebral complications of suppurative otitis media, and the differential diagnosis of these lesions, stands out pre-eminently in this new edition; as does also the chapter on the radical mastoid operation, and the operative technique called for in labyrinth suppuration.

The only salient point of criticism which may be offered, from our point of view, is the rather meager notice accorded to the American otological workers, in the appended chapter, Literaturverzeichnis (Bibliography).

The Diseases of the Nose, Throat and Ear.

By CHARLES PREVOST GRAYSON, A. M., M. D., Clinical Professor of Laryngology in the Medical Department of the University of Pennsylvania, Physician in charge of the Department for Diseases of the Nose and Throat in the Hospital of the University of Pennsylvania; Laryngologist and Otologist to the Philadelphia Hospital. Second edition. Cloth, 8vo., 532 pages, with 152 engravings and 15 plates in color and monochrome. Publishers, Lea Brothers & Co., Philadelphia and New York.

The second edition of Grayson's work includes many new features, among which special mention should be made of a series of colored plates and an adaptation to the practical needs of this volume of many of the illustrations in the recent work of Laurens on the surgery of the nose, throat, and ear.

Many of the chapters have been considerably enlarged and brought up to date. The plates of Cryer, on "The Anomaly of the Accessory Sinuses," form a valuable adjunct to the volume.

Bronchoscopy and tracheoscopy are touched on very lightly, and the illustrations accompanying the brief reference to this important chapter are rather inadequate.

Les Maitres de l'Ecole de Paris dans la periode pre-specialistique des Maladies du Pharynx, du Larynx et du Nez. (Leaders of the Paris School, in Diseases of the Pharynx, Larynx and Nose, before the Age of Specialization).

By DR. C. CHAUVEAU, Directeur des *Archives Internationales de Laryngologie, d'Otologie et de Rhinologie*. Vol. I, 12mo., 295 pages, with a preface by Professor R. Blanchard, former President of the French Society of Medical History. Publishers, J. B. Bailliere et Fils, 19 Rue Hautefenille, Paris.

In this volume Dr. Chauveau, in his patient and thorough way, has dealt with the status of medical and surgical treatment of the diseases of the pharynx, larynx and nose, during the period before the Age of Specialization, both before and after the beginning of the nineteenth century. Enlivened by thumbnail portraits, there are special chapters devoted to Pinel, Guersant, Broussais, Andral, Valleix, Chomel, Monneret, Barthez, Gubler, Trousseau, Lasegue, Boyer, Dupuytren, Roux, Velpeau, Robert, Chassaignac, Nelaton, and Verneuil.

The Surgery of the Ear.

By SAMUEL J. KOPETZKY, M. D., Attending Otologist, New York City Children's Hospitals and Schools; Attending Otologist to the New York Red Cross Hospital; Assistant Surgeon and Instructor in Operative Surgery of the Ear, Manhattan Eye, Ear and Throat Hospital; Pathologist and Surgeon, New York Throat, Nose and Lung Hospital; Fellow of the American

Laryngological, Rhinological and Otological Society; Fellow of the New York Academy of Medicine, American Medical Association, Otological Society of Germany, etc. Cloth, 12mo.; 368 pages, with sixty-three half-tone and line engravings, eight charts and four colored plates. Price, $4.00. Publishers, Rebman Company, 1123 Broadway, New York, 1908.

The author presents a working manual with the avowed object of correlating the extensive literature with his personal experience and observations, and producing a book adapted to the needs of the medical student, the practitioner and the specialist. Dr. Kopetzky has commendably made free use of the standard American and foreign text-books, monographs and periodicals, and at the end of each chapter has collected the references cited, which are indicated as not a complete bibliography but a guide to those interested. In all, there are more than 500 of these citations, grouped among the fourteen chapters, which deal with the following divisions of the subject: Operations on the External Auditory Canal; Paracentisis; Aural Polyps; Operations to Improve Hearing in Dry Middle Ear Lesions; Ossiculectomy; The Simple Mastoid Operation; The Radical Mastoid Operation; The Surgery of the Labyrinth; Operations on the Blood-Vessels; The Surgery of the Meninges; Surgery of Otitic Cerebral and Otitic Cerebellar Abscess; Paralysis of the Facial Nerve; Lumbar Puncture; and Ventricular Puncture.

The work contains numerous original illustrations and is made accessible by a compact subject-index.

Medical Greek: Collection of Papers on Medical Onomatology and a Grammatical Guide to Learn Modern Greek.

By ACHILLES ROSE, M. D. Cloth, 12mo. Price, $1.00. Publishers, Peri Hellados Publication Office, 87 Frankfort Street, New York, 1908.

Stated in his own words, the author's contention is this: "However valuable the scientific achievements and literary contributions of medical authors may be, we are nevertheless, and indeed all the more, justly entitled to expect from these authors correctness in language, and the first essential of correctness is the use of correctly formed technical terms." Dr. Rose adds to this just dictum a plea for a wider knowledge of living Greek and for its employment as a means of international communication among scholars.

La Laringe nelle Lesione del Ricorrente. (The Lesions of the Recurrent Laryngeal Nerve).

By PROFESSOR DR. TOMMASO MANCIOLI, Demonstrator in Otology, Royal Oto-Rhino-Laryngological Clinic, Rome. Paper, 12mo.; 139 pages, 18 illustrations. Price, lire 3.50 (70 cents). Publisher, "La Speranza," Via Firenze 38, Rome.

This monograph is well illustrated, and gives the anatomy, pathology, and clinical deductions in excellent form, as well as an exhaustive bibilography of works on the same subject published since 1880.